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WASHINGTON, D. C. 20319

A BEHAVIORAL MODEL OF THE
DETERMINANTS OF PERSONNEL TURNOVER
IN THE ENLISTED RESERVE
OF THE U. S. NAVY

RESERVE COMPONENT RETENTION STUDY
REPORT NUMBER ONE

Commander Hardy L. Merritt, USNR

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A BEHAVIORAL MODEL OF THE DETERMINANTS OF
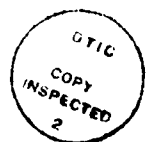PERSONNEL TURNOVER IN THE ENLISTED RESERVE
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Mobilization Concepts Development Center
National Defense University

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EXECUTIVE SUMMARY

This report is the first in a series of analyses concerning attrition of enlisted personnel in the Reserve Components of the Armed Forces. It addresses turnover behavior in the U.S. Naval Selected Reserve as a serious mobilization issue which has the potential of reducing the operational readiness of the U.S. Navy.

Objectives

1. To provide a general discussion of previous research relating to turnover behavior in organizations.

2. To identify organizational and individual factors which are associated with a participant's decision to terminate organizational affiliation.

3. To develop a methodology suitable for analyzing the relative strength of these factors in individual decisionmaking and apply this methodology to the Naval Reserve.

4. To offer the results to Reserve Component manpower and mobilization specialists, senior Naval Reserve managers, and the research community.

Approach

To attain these objectives, the following methods were employed:

1. Review of existing civilian and military retention research.

2. Development of a nonrecursive path analytic statistical model of turnover behavior in the Naval Reserve.

3. Operationalization of the model utilizing data gathered in the 1980 National Naval Reserve Retention Survey.

Conclusions

1. Previous retention research in the military environment has excessively concentrated on compensation as the major factor in withdrawal behavior (page 98).

2. Retirement benefits are substantially more important than current pay levels for enlisted selected reservists (page 100).

3. Authoritarian leadership style is the strongest factor in the development of a generalized attitude that quitting the Naval Reserve is a good decision (page 95).

4. The influence of relevant others (family, civilian employer, military peers, friends) is the strongest determinant of participation level (page 105).

5. Current pay level is not a significant factor in the decision to withdraw. It is, however, a major factor in determining the degree of an individual's participation in the work of the unit (page 105).

6. Pay is the major determinant in the initial enlistment decision (page 99).

7. Organizational cathexis, defined as a reciprocal concern for the well-being and success of the organization and the individual, is significantly related to withdrawal behavior and participation level (page 104).

8. Job satisfaction is only weakly related to participation level. It is slightly more important to withdrawal behavior (page 91).

Recommendations

1. Increase retirement benefits.

2. Do not reduce retirement benefits in favor of current compensation.

3. Address the problem of authoritarian leadership style through increased use of the Leadership Management Education and Training (LMET) program.

4. Expand the efforts of the National Committee for Employer Support of the Guard and Reserve.

5. Increase the involvement of the family in unit activities.

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Preface

This report on the Naval Reserve is the first in a series of analyses which will address the determinants of retention in the Reserve Components of each of the Service branches. The final report in this series will aggregate Service-specific findings and provide a global discussion of retention in the military reserve forces.

Disclaimer

The analysis and opinions expressed or implied herein are solely those of the author. They do no necessarily represent the views of The National Defense University or its constituent colleges, The Department of Defense, or any other U.S. government agency.

Acknowledgements

The author is indebted to the Director and Staff of the Mobilization Concepts Development Center for their time and support of this research. The project could not have been completed without the administrative assistance of Mr. Robert J. Goodie and his excellent support staff, including Ms. Jean H. Fones and Ms. Cynthia W. Tillery who spent long hours typing drafts and correcting grammatical errors.

The assistance of Dr. Milton L. Boykin, Captain, USNR, is particularly noted with thanks for his continuing guidance in the analysis of Naval Reserve Manpower Issues.

REPORT NUMBER ONE: A BEHAVIORAL MODEL OF THE DETERMINANTS OF
PERSONNEL TURNOVER IN THE ENLISTED RESERVE
OF THE U.S. NAVY

CHAPTER ONE

OVERVIEW

Introduction

The purpose of this research is to provide insight into the
problems of retention of Naval enlisted Selected Reserve personnel,
concentrating on behavioral factors such as job satisfaction,
individual expectations, performance levels, cohort influences, and
selected socioeconomic factors. The methodology of path analysis will
be used as a modeling technique to determine the relative importance
of these concepts and to analyze their impact on individual attrition
decisions.

The research reported in this study is based on a 1980 national
survey of the Naval Reserve conducted under the auspices of the Chief
of Naval Reserve. The survey consisted of a random sample of 1834
reservists representative of the approximately 87,000 members of the
Selected Reserve. The reader is referred to the July 1980 CNAVRES
report entitled, "An Empirical Analysis of Retention Within the

United States Naval Reserve" for a discussion of the survey and its initial findings.[1] The report was descriptive in nature and, while it was most informative, it did not utilize sophisticated modeling techniques to isolate the independent impact of major variables on turnover behavior. This report will present such a model.

Discussion

The management of human resources has become a high priority item in all modern complex social organizations. This problem is particularly acute in American military organizations operating in an All-Volunteer environment. The military is a public bureaucracy which shares many characteristics with the civilian bureaucracies, including the potential for making substantial contributions to the survival of the political order. As a public bureaucracy, it experiences many of the same organizational dysfunctions and pathologies which are experienced in other sectors of the government. The attrition of qualified individuals is not the least of these.

Currently, United States military manpower policy is jeopardized by a shrinking birth rate which is reducing the manpower pool available for military service and by cultural attitudinal changes which are adversely affecting the All-Volunteer Force. The historical relationship between military service and citizenship has faded, and

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[1]M.L. Boykin, H.L. Merritt and R.L. Smith, An Empirical Analysis of Retention Within the United States Naval Reserve (New Orleans: Chief of Naval Reserve, 1980). The author wishes to express his appreciation to Dr. Milton L. Boykin of The Citadel who contributed major portions of Chapter One.

the attractiveness of military routines as a form of civic and moral education is questioned by an increasingly large number of young individuals. In a society where conscription and a large standing military force may not be viable political operations, the military reserves of the Army, Navy and Air Force offer alternatives.

Under the Total Force concept, reserve forces have been increasingly relied upon in order to achieve desired force levels. This highlights current U.S. defense doctrine as initially stated in 1970 by Secretary of Defense Laird, who said that, "Reserve forces are to be the initial and primary source of augmentation of the active forces." Because the Selective Service System has been essentially eliminated, it will take at least seven months to select and train draftees and a minimum of three months to train voluntary enlistees. As quoted by Secretary Laird, Former Deputy Assistant Secretary of Defense Logan accurately stated, "The Reserves are not a joke. The survival of our country depends on them, and the margin for error is gone."

Selected Reservists spend one weekend per month and two weeks per year in an active drilling status. This requires that once each month they forego a weekend of leisure activities. Frequently, they must also take their summer vacation to go on Active Duty for Training. All too many of these individuals are deciding that they do not wish to continue participating in an organization that does not satisfy

their expectations regarding training, that does not offer satisfying job experiences, and that takes them away from other activities in which they had rather be involved. The question here is to determine which variables are associated with the decision not to continue participating in the Reserves. If these variables can be isolated, an analytical model of organizational participation can be developed which will make it possible to evaluate the impact of selected manpower management practices on individual decisions to remain in or leave the Reserves. From a policy perspective, intenvention strategies can then be formulated and inserted into such an analytical model in order to assess the policy's potential to alleviate the pressure on reservists to get out.

The literature on recruitment and retention in large-scale organizations is voluminous, but current theoretical participation models show a definite lack of consensus. Economists tend to view the military manpower system as a market and discuss issues in terms of supply and demand.[2] Other social scientists stress the importance of social and psychological aspects of organizational life. Both economists and sociologists recognize that non-pecuniary

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[2]J.T. Warner, "Issues in Navy Manpower Research and Policy: An Economists Perspective, " Professional Paper 322 (Alexandria, VA: Center for Naval Analyses, 1981).

general pay raises are particularly inappropriate since they do not
discriminate between occupational groups, and the responsiveness to
pay across occupational groups varies considerably. General economic
incentives may result in the retention of either individuals who would
have stayed anyway or the retention of those "aged" reservists who are
no longer productive. Pay raises also have long-term effects on the
overall cost of military manpower, such as dramatically increasing
retirement compensation.

The preoccupation with economic models of man has long disturbed
some social scientists. Sociologically oriented researchers like
Maslow, Herzberg, and Argyris have stressed the importance of a
"heirarchy of needs" usually beginning with basic physiological drives
and progressing to more intrinsic rewards, such as
self-actualization.[5] Zurcher has looked at the problem from the
perspective of role theory and noted the conflict between the
reservists's "dominant role" in his civilian occupation and his
"ephemeral role" as a reservist, particularly as it affects one's
organizational commitment.[6]

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[5]A. Maslow, _Motivation and Personality_, 2nd ed. (New York: Harper and Row, 1970); F. Herzberg, _Work and the Nature of Man_ (New York: World Publishing, 1966); C. Argyris _Integrating the Individual and the Organization_ (New York: Wiley and Sons, 1964).

[6]L.A. Zurcher, "The Naval Reservist: An Empirical Assessment of Ephemeral Role Enactment," _Social Forces_, March 1977.

Fishbein, following the earlier work of Rosenberg, theorized that an individual's psychological "attitude toward the act of withdrawal" is an immediate predictor of the intention to quit.[7] These researchers are more concerned with the cultural facets of organizational participation.

It is important that we should be informed by the findings of economists, sociologists, and organizational theorists who study the activities of workers in the private sector, and that we are knowledgeable about the studies of the active duty military services of the Army, Navy, Air Force and Marines. However, the situation of individuals studied by these researchers is vastly different from that of a member of a reserve component. The motivations of people in full-time employment occupations, whether public or private, may differ considerably from those of individuals who are participating in a voluntary association. The attitudes of a young Marine at Parris Island, an automobile worker in Detroit, and a reservist in Philadelphia attending a weekend drill are quite different. The Reserve Components are hybrid organizations, part volunteer, but a voluntary association which could very quickly be transformed into a

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[7]M. Fishbein, "A Behavioral Theory Approach to the Relations Between Beliefs About an Object and the Attitude Toward the Object," Readings in Attitude Theory and Measurement (New York: Wiley and Sons, 1967); M.J. Rosenberg, "Cognitive Structure and Attitudinal Affect," Journal of Abnormal and Social Psychology 53, 1956, pp. 367-372.

full-time profession. Therefore, it is important to investigate empirically the attitudes and motivations of reservists to participate.

The organizational behavior literature has long been concerned with the interlocking relationships among such concepts as job satisfaction, performance, and expectations. Some theorists indicate that job satisfaction partially determines what one expects to get out of his work, and this in turn influences performance. Others suggest that there is a reciprocal relationship between expectancy and performance. One school of thought accepts the hypothesis concerning expectancy-performance but rejects the idea that performance and job satisfaction are interactive. Still others make persuasive arguments for various other causal relationships among these concepts. It is clear that current organizational participation models show a lack of consensus. However, despite this disagreement on the causal ordering of explanatory concepts, there is general agreement on the concepts which are germane to discussions of organizational participation. The following chapter discusses these concepts in detail.

CHAPTER TWO

THE LITERATURE OF ORGANIZATIONAL PARTICIPATION

Introduction

The purpose of this chapter is to provide a conceptual
understanding of an individual's decision to participate in work
organizations, of which the Naval Reserve is one.

Previous to 1973, the vast bulk of research concerning
organizational participation concentrated on bivariate analyses of
specific problem areas. These areas included such items as pay,
status, comfort, satisfaction, social background, and reward equity.
Mobley, et al. provides an excellent review of this literature.[1]
However, as Mobley et al. point out, the process of attempting to
explain participation in terms of a single contributing factor
(bivariate analysis) was only successful in explaining between 5-10

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[1]A review of the major literature since 1973 can be found in
William H. Mobley, R.W. Griffeth, H.H. Hand, and B.M. Meglino, Review and
Conceptual Analysis of the Employee Turnover Process, Columbia, S.C.:
University of South Carolina, 1978.

percent of the variance.[2] In other words, the question of
participation remained 90 percent unexplained.

More recent research such as Porter and Steers, and
Price has empirically affirmed the intuitively obvious understanding that
many factors contribute to an individual's decision to participate in an
organization.[3] The task then becomes that of selecting and
appropriately combining those elements which, _in toto_, define this
participation decision.

Various constructs have been developed over the years in an attempt
to explain and illustrate behavior in organizations. In many instances,
these constructs concentrate on one dependent variable to the exclusion
of others, and are usually anchored in one particular theory without
sufficient regard for alternative or complementary theories. This
section will present a discussion of several of the more significant
theories as a developmental base from which a general model of individual
behavior in the Naval Reserve can be constructed.

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[2] Ibid., p. 7.

[3] Lyman W. Porter and R.M. Steers, "Organizational, Work, and
Personal Factors in Employee Turnover and Absenteeism," _Psychological
Bulletin_ 80 (1973): 151-56; J.L. Price, _The Study of Turnover_ (Ames,
Ia.: Iowa State University Press, 1977).

Economic Rationality

The rational choice paradigm appears to be well suited to such a discussion. According to this paradigm, "decision" presupposes a choice among alternatives in relation to some goal. As Herbert Simon notes, this involves the assumption that what human beings do is "intendedly rational," an assumption fundamental to most understanding of human behavior.[4] According to Graham Allison,

> This everyday assumption of human purposiveness has a counterpart that plays a central role in the social sciences. One strand of social science concentrates on the reactive aspects of human behavior, specifying regularities of behavior in certain typical situations. But the central tradition in the social sciences examines the purposive, calculated, and planned aspects of human behavior. Thus economics, political science, and to a large extent sociology and psychology study human behavior as purposive, goal-directed activity.[5]

Anthony Downs has stated that, "If a theorist knows the ends of some decision-maker, he can predict what actions will be taken to achieve them."[6] This is accomplished by learning the most reasonable way to reach an individual goal and assuming that this way will actually be chosen. In such an analysis, it is assumed that means

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[4]Herbert A. Simon, Models of Man (New York: The Macmillian Company, 1957), p. 196.

[5]Graham T. Allison, The Essence of Decision: Explaining the Cuban Missile Crisis (Boston: Little, Brown and Co., 1971), p. 28.

[6]Anthony Downs, An Economic Theory of Democracy (New York: Harper and Row, 1957), p 4.

can be separated from ends and that rationality is applied only to the
means to achieve a goal without regard to the rationality of that goal.
According to Downs,

> This follows from the definition
> of rational as efficient, i.e.,
> maximizing output for a given input, or
> minimizing input for a given output.
> Thus, whenever economists refer to a
> "rational man" they are not designating
> a man whose thought processes consist
> exclusively of logical propositions, or
> a man without prejudices, or a man
> whose emotions are inoperative. In
> normal usage all of these could be
> considered rational men. But the
> economic definition refers solely to a
> man who moves toward his goals in a way
> which, to the best of his knowledge,
> uses the least possible input of scarce
> resources per unit of valued output.[7]

In accepting that rationality refers to consistent, value-maximizing
choice within specified constraints, the following concepts are
attributed to rational decisionmaking.[8]

1. Goals and objectives. The goals and objectives of a decider are
ranked in transitive order. The consequences of the actions necessary to
attain them are rank-ordered in terms of their "payoff."

2. Alternatives. The decider must choose among the various sets of
alternatives available which are relevant to achieving the goal.

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[7]Ibid., p. 5.

[8]As discussed in Allison, pp. 29-30.

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3. Consequences. Variations in outcome are evaluated by making different assumptions concerning the accuracy of the knowledge of the consequences resulting from each alternative.

4. Choice. The alternative which possesses the highest "payoff" is selected for action.

The following discussion presents significant concepts which have been recurrently utilized by scholars in rational choice models for the development of an understanding of human behavior in organizations. Table 2.1 summarizes these.

TABLE 2.1

VARIABLES RELEVANT TO INDIVIDUAL PARTICIPATION

Dependent Variables	Independent or Intervening Variables
Behaviorial Intention	Retirement
Participation Level	Pay
	Influence of Relevant Others
	Leadership Style
	Attitude Toward the Act of Withdrawal
	Job Satisfaction
	Organizational Cathexis
	Socioeconomic Factors
	Expectancy

The Dependent Variables

Behavioral Intention

In 1956, Milton J. Rosenberg developed an analytical model which attempted to illustrate that an attitude toward an object is related to the ends to which the object serves.[9] His data were collected from 112 subjects using three variables:

1. Value defined as the satisfaction derived from 35 goals including power over people, a high standard of living, the United States having prestige in other countries, and equal rights for all people.

2. Instrumentality defined as the perceived probability or expectation that either free speech for Communists or racial segregation will facilitate or inhibit the attainment of each of 35 goals.

3. Attitude defined as the overall affect toward free speech and segregation.

The subject's attitude toward the value object was calculated as the algebraic sum of the product of the value of each individual goal and the perceived instrumentality of that goal. The score was validated by its congruence with an independently obtained score of favorableness toward

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[9]Milton J. Rosenberg, "Cognitive Structure and Attitudinal Affect," Journal of Abnormal and Social Psychology 53 (1956): 367-72.

the object of the attitude. This model lent support to the proposition
that attitudes are valid predictors of behavior, but are not in
themselves totally sufficient.

In the early 1960's, D.E. Dulaney refined the concept of attitude as
a predictor of behavior.[10] As presented in Figure 2.1, his theory
forms a network of knowledge and beliefs which defines behavioral
intention as the immediate antecedent of overt behavior. It is based
upon two hypotheses: The Response Hypothesis (RH) which is an
individual's expectation of reinforcement for an activity and the
Behavioral Hypothesis (BH) which is an individual's response to group
norms. Associated with this is the perceived value of the reinforcer and
the individual's motivation to comply. He contended that any additional
variables are exogenous and exert only indirect effects which are
mediated by the explicit variables within the model.

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[10]D.E. Dulaney, "Hypotheses and Habits in Verbal 'Operant
Conditioning'," _Journal of Abnormal and Social Psychology_ 63 (1961):
521-563.

Figure 2.1

THE DULANEY MODEL

$$R = BI = [(RH_d) \ (RS_v) \ wo + (BH) \ (MC)]w_1$$

R = Overt behavior

BI = Behavioral intent

RH = Expectation of reward distribution

RS = Subjective value of the reward

wo = Weight

BH = Congruence of response with group norms

w_1 = Weight

By treating behavioral intention as the immediate predicator of behavior, Dulaney was concerned with precision in defining the concept. This was accomplished by evaluating specific types of intention relating to an individual's intention to perform a given action in a given situation. Unlike previous researchers, he did not ask his subjects to indicate their intentions to act in general, but evaluated their responses in specific laboratory situations.

In controlled experiments, Dulaney manipulated reinforcements and group norms relative to specific, desired activities. In this laboratory environment, he accounted for 75 percent of the variance in behavioral intention which, in turn, accounted for 85 percent of the variance in overt behavior. His major finding was that, to the extent that independent variables are specific to a given act, behavioral intention approximtates overt behavior. This finding has had a major impact on more recent research and is most relevant to current discussions of individual behavior in the Naval Reserve.

Behavioral intention has been used as the dependent variable in a number of major analyses of organizational participation.[11] Fishbein and Ajzen, for example, consider the variable to be the single best predictor of behavior. Based on this and other research by Fishbein and associates, behavioral intention has been validated as an accurate indicator of overt behavior throughout the literature.[11] It will be used as such in this thesis.

Participation Level

Participation level is defined as the degree to which an individual is involved with the work requirements of the organization. As stated by Justin Longenecker,

> From a psychological point of view,
> there is a difference between

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[11]Icek Ajzen and Martin Fishbein, "Attitudinal and Normative Variables as Predictors of Specific Behaviors," Journal of Personality and Social Psychology 27 (1973): 41-57; John C. Brigham, "Racial Stereotypes, Attitudes, and Evaluations of and Behavioral Intentions Toward Negroes and Whites, " Sociometry 34 (1971): 360-380; Stan L. Abrecht and Kerry E. Carpenter, "Attitudes as Predictors of Behavior Versus Behavior Intentions: A Convergence of Research Traditions," Sociometry 39 (1976): 1-10.

See also W.H. Mobley, "Intermediate Linkages in the Relationship Between Job Satisfaction and Employee Turnover," Journal of Applied Psychology 62, 1977, pp. 237-240; J.L. Koch and R.M. Steers, "Job Attachment, Satisfaction, and Turnover Among Public Employees," Journal of Vocational Behavior 12, 1978, pp. 119-128.

An excellent literature review on this topic can be found in P.W. Hom, R. Katerberg and C.L. Hulin, "The Prediction of Turnover in a Part-Time Military Organization," Office of Naval Research, 1976.

> activity and participation level.
> Participation may add meaning to
> work and permit the employee to
> become identified with it. This
> adds dignity to the job and to the
> incumbent.[12]

It has been noted that an employee's participation level is partially determined by motivation and that its quantification should be representative of meaningful behavior on the job.[13] In the Naval Reserve, participation level and performance are synonomous. Military performance ratings are based on the amount of organizationally enhancing tasks successfully accomplished by members. Productivity and performance are separate constructs measured along different dimensions. Productivity measures are narrowly focused on units of output (letters typed, radios repaired, etc.) per unit of time and are not necessarily indicative of an individual's total participation in the organization except at the most junior level. Conversely, performance is a measure of "--- the significance of each task in terms of how important the task is to the position, how much a part of the job the task is, and how frequently the task is performed."[14]

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[12]Justin G. Longenecker, _Principles of Management and Organizational Behavior_, 3rd Ed. (Columbus, Ohio: Merrill Publishing Co., 1973), p. 456

[13]Ramon J. Aldag and Arthur P. Brief, _Task Design and Employee Motivation_, (Glenview, IL.: Scott, Foresman Company, 1979), p. 18-26

[14]Ibid., p. 65

There have been a variety of studies addressing the determinants of performance. These studies can, for discussion purposes, be grouped by theoretical orientation. One cluster, for example, has concentrated on the concept of expectancy.[15] Another has concentrated on the general topic of job satisfaction.[16] Still others have focused on such items as role perception, technology level, and reinforcement or learning theory.[17]

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[15]Expectancy is a perceived effort-performance association. It is the employee's estimate of whether he is capable of achieving some specified performance goal (Aldig and Brief, 1979, p. 18). The concept is extensively developed in J.P. Campbell and R.D. Pritchard, "Motivation Theory in Industrial and Organizational Psychology, "Handbook of Industrial and Organizational Psychology (Chicago: Rand McNally, 1976); J.P. Campbell, M.D. Dunnette, E.G. Lawler and K.E. Weick, Managerial Behavior, Performance, and Effectiveness (New York: McGraw-Hill, 1970); G. Graen, "Instrumentality Theory of Work Motivation", Journal of Applied Psychology Monograph 53 (1969), pp 1-25; E.E. Lawler, III, Pay and Organizational Effectiveness (New York: McGraw-Hill, 1971); E.E. Lawler and L.W. Porter, Managerial Attitudes and Performance (Homewood, IL: Irwin, 1968); V.H. Vroom, Work and Motivation (New York: Wiley, 1964).

[16]The relationship of job satisfaction to performance is discussed in D.P. Schwab and L.L. Cummings, "Theories of Performance and Satisfaction: A Review", Industrial Relations 7 (1967); T.C. Tuttle and J.T. Hazel, Review and Implications of Job Satisfaction and Work Motivation Theories for Air Force Research, Human Resources Laboratory, Brooks Air Force Base, 1974; P.C. Smith, L.M. Kendall and C.L. Hulin, The Measurement of Satisfaction in Work and Retirement (Chicago: Rand McNally, 1969); J.L. Koch and R.M. Steers, "Job Attachment, Satisfaction and Turnover Among Public Sector Employees", Journal of Vocational Behavior 12 (1978); Mobley, et al, 1978.

[17]T.M. Newcomb, Social Psychology (London: Tavistock, Inc., 1952); S. Lieberman, "The Effects of Changes in Roles on the Attitudes

In 1967, Lawler and Porter developed a theoretical model which is indicative of the expectancy orientation. It related job attitudes to performance, borrowing from earlier approaches to work motivation by Vroom.[18] The components of the model, illustrated in Figure 2.2, draw together reward value and effort-rewards probability. Reward value is defined as". . .the attractiveness of possible rewards or outcomes to the individual."[19] The second variable refers to ". . . an anticipation that a desired reward will flow from putting forth certain levels of effort."[20] They elaborated the model in 1968 to include types of rewards and job satisfaction.[21] As illustrated in Figure 2.3, these concepts form a feedback linkage to iteratively affect performance.

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of Role Occupants", Organizational Behavior and Management, Tosi and Hamner, Eds., 1977; D.F. Gillespie and D.S. Mileti, "Technology and the Study of Organizations: An Overview and Appraisal", Academy of Management Review 2 (1977), pp. 7-16; W.C. Hamner, "Reinforcement Theory and Contingency Management in Organizational Settings", Organizational Behavior and Management: A Contingency Approach (Chicago: St. Clair Press, 1974); F. Luthans and R. Kreitner, Organizational Behavior Modification (Glenview, IL: Scott, Foresman, 1975).

[18]E.E. Lawler and L.W. Porter, "Antecedent Attitudes of Effecting Managerial Performance", Organizational Behavior and Human Performance 2 (1967), pp. 122-142; Vroom, 1964.

[19]Lawler and Porter, 1967, p. 125

[20]Tuttle and Hazel, 1974, p. 17

[21]Lawler and Porter, 1968, p. 165

Figure 2.2

THE PORTER AND LAWLER MODEL, 1967
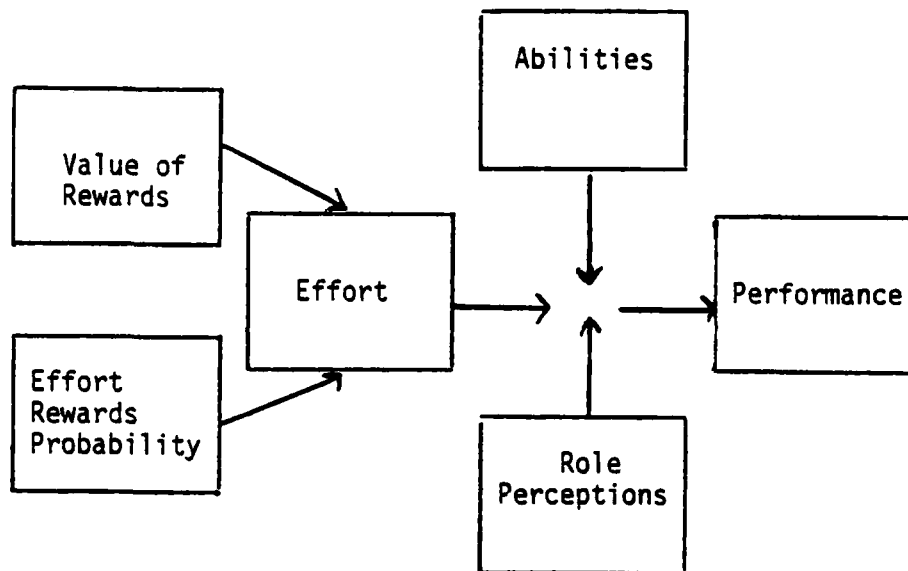
Figure 2.3

THE PORTER AND LAWLER MODEL, 1968
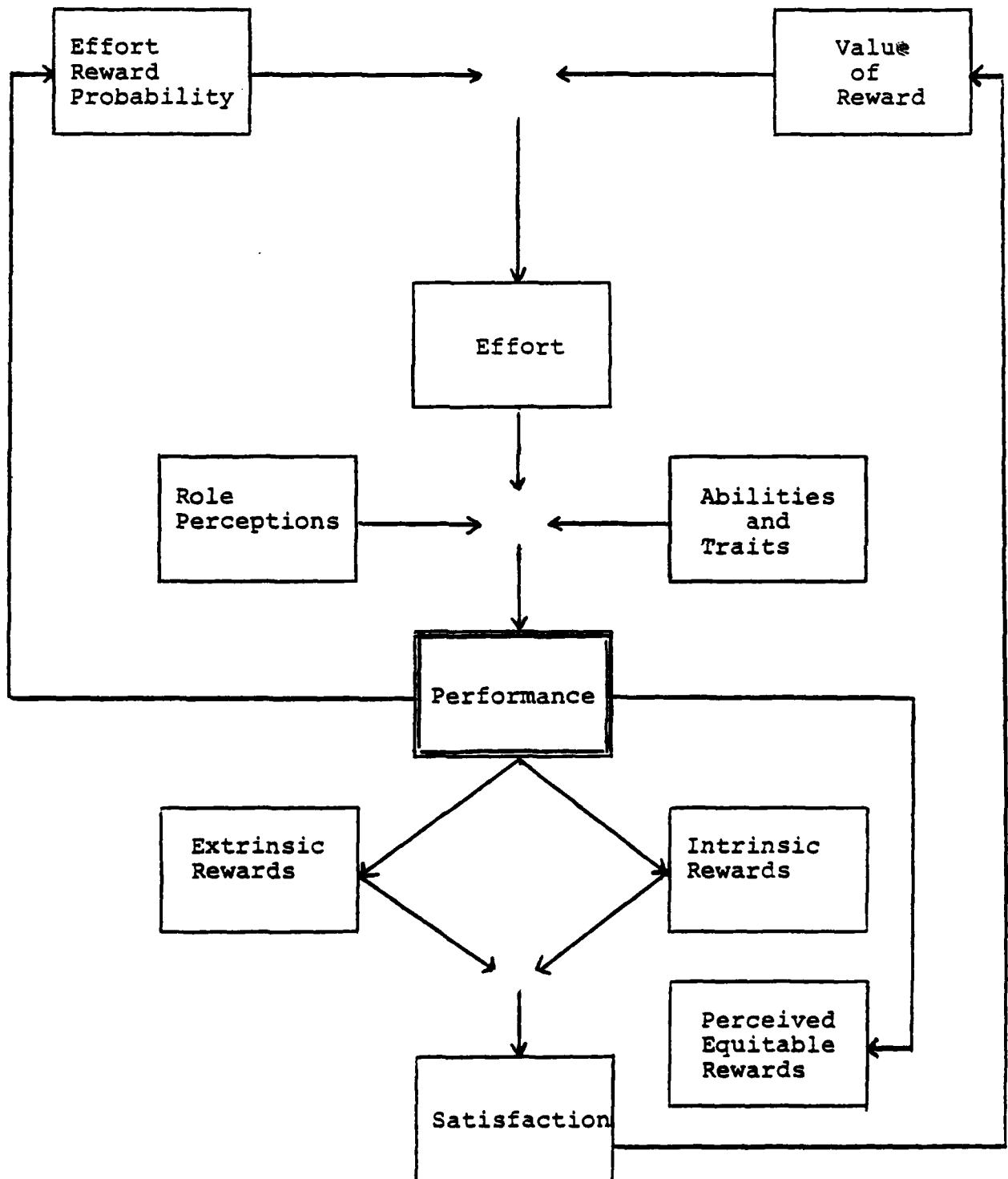
The method of inclusion of job satisfaction denoted a departure from the expectancy theme developed by Vroom and his emulators. As stated by Tuttle and Hazel,

> A primary difference is concerned
> with the relationship between
> satisfaction and performance.
> Lawler and Porter (1967a, 1967b)
> and Porter and Lawler (1968a)
> explicitly state that satisfaction
> is, in part, a function of
> performance. In other words,
> satisfaction is an "output" of the
> model. The Vroom (1964) and Graen
> (1969) formulations are somewhat
> vague on the effects of performance
> on satisfaction. The emphasis of
> the model, however, is upon
> satisfaction as an input to the
> work performance model. This is
> stated explicitly in Vroom's (1964)
> Proposition 2 where the "valence of
> a work role" combines with
> expectancy to predict the
> probability of an act. Thus, in
> one model, Lawler and Porter
> (1967a, 1967b), considered
> satisfaction to be an output. In
> Vroom (1964) and Graen's (1969)
> formulation, satisfaction is seen
> to be an input.[22]

The work of Vroom and other expectancy theorists has contributed significantly to an understanding of individual participation in organizations. However, there is some question by other scholars regarding the efficacy of relying upon this approach completely. As noted, Lawler and Porter found it necessary to include job

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[22]Tuttle and Hazel, 1974, p.19

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satisfaction in their expectancy model. More recently, Tuttle and

Hazel have stated that ". . . expectancy theory is not sufficiently

developed to provide the needed conceptual base for dealing with the

complexities of human work movitation".[23] Smith, Kendall and Hulin

emphasized job satisfaction in association with Lawler and Porter's

work through the development and use of the Job Description Inventory

(JDI) which is now accepted as a standard measuring instrument for job

satisfaction.[24] They state:

> We hypothesize that these feelings
> are associated with a perceived
> difference between what is expected
> as a fair and reasonable return
> (or, when the evaluation of future
> prospects is involved, what is
> aspired to) and what is
> experienced, in relation to the
> alternatives available in a given
> situation. Their relation to
> behavior depends upon the way in
> which the individual expects that
> form of behavior to help him
> achieve the goals he has accepted
> (p. 6).

> Job satisfactions are, we believe,
> a function of the perceived
> characteristics of the job in
> relation to an individual's frames
> of reference. Alternatives
> available in given situations,
> expectations, and experience play
> important roles in providing the
> relevant frame of reference (p. 12).

> Satisfaction is a product of other
> variables, and it may or may not
> serve as a cause in itself (p. 162).

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[23]Ibid., p. 21.   [24]Smith, et al, 1969

This approach embraces portions of Vroom's instrumentality theory and Lawler and Porter's concept of "effort-rewards probability". It also, however, treats these concepts as contributing influences to behavior but not as exclusive determinants. As noted in Miller, Katerberg and Hulin, "Strong consistent relationships have been documented between work satisfactions and behavior (Hom, Katerberg and Hulin, 1978; Hulin, 1966; Porter and Steers, 1973)".[25]

In this continuing research effort, opportunities have been made available to discuss expectancy with a number of the principals noted above. Dr. Dunham (University of Wisconsin), is quite in favor of eliminating expectancy as it is variously defined by incorporating it into the concept of job satisfaction. This view is most strongly held by Dr. Hulin, (University of Illinois), and Dr. Miller, (University of Minnesota). Dr. Hulin, indeed, goes so far as to state that the whole concept of expectancy is ill-defined and should be avoided in favor of multiple affective satisfaction responses to the job.[26] In light of these recommendations, the concept of expectancy will not be operationalized fully in this paper.

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[25]H.E. Miller, R. Katerberg and Charles L. Hulin, "An Evaluation of the Mobley, Horner, Hollingsworth Model of Employee Turnover", Journal of Applied Psychology 64 (1979), pp. 509-517 The topics of job satisfaction will be discussed further under the heading "Dependent and Intervening Variables".

[26]Interview notes, Hulin and Miller, April 1982. It should be noted that Dr. Hulin is the author of four books, chapter contributor to six books, principal or co-author of forty-one journal articles and seventeen technical reports, and is cited throughout the industrial psychology literature.

Following the job satisfaction approach to participation level,
Lawrence B. Mohr has found that employees express this satisfaction
through their degree of participation in the job. In reviewing ten
studies, he found that correlations between participation level and
satisfaction ranged from .23 to .55, clustering around the .35 level
of Pearsonlan correlation.[27] The importance of these studies lies
in their treatment of participation level as a dependent variable.
This will be the approach taken in this paper.

Independent and Intervening Variables

Attitude Toward the Act of Withdrawal (Aact)

Commencing in 1963, Martin Fishbein and his associates began
applying the laboratory research of Dulaney to the field of social
psychology.[28] As illustrated in Figure 2.4., Fishbein stated that
an individual's intention to perform a specific act in a specific
situation is a function of four factors: (1) his belief that the act
will lead to some particular consequence, (2) his evaluation of the
importance of the consequence, (3) his normative belief as to what he
ought to do in a particular situation, and (4) his motiviation or
desire to comply with his normative belief.

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[27]L.B. Mohr, Explaining Organizational Behavior (San
Francisco: Jossey-Bass, 1982), pp. 129-130

[28]Martin Fishbein, "An Investigation of the Relationships
Between Beliefs About an Object and Attitude Towards That Object,"
Human Relations 16 (1963): 233-39.

Figure 2.4

THE FISHBEIN MODEL

A. Initial Model:

$$Aact = \sum_{i=1}^{n} B_i a_i$$

> Aact = Attitude toward performing an act
> B_i = Probability that a behavior will lead to some consequence
> a_i = The importance of the consequence

B. Evaluative Elaboration:

$$B = BI = (Aact)w_o = (\sum_{i=1}^{k} NB_i MC_i)w_i$$

> B = Actual behavior
> BI = Behavioral Intention
> w = Weight
> NB = Normative belief
> MC = Motivation, comply with the norm

C. Fully Elaborated Model:

$$B = BI = (Aact)w_o = ((NB_p)(MC_p))w_1 + ((NB_s)(MC_s))w_2$$

> NB_p = Personal normative belief
> MC_p = Personal motivation to comply
> NB_s = Societal norms
> MC_s = Motivation to comply with societal norms

Part A of Figure 2.4 is a general statement of the model
indicating that attitude toward an act is an algebraic sum of the
products of individual perceptions of the efficacy of a specific
consequence resulting from the act times the evaluative importance of
the consequence. This is similar to the behavioral hypothesis of
Dulaney in that it addresses a belief about whether a particular act
should or should not be performed.[29] In other words, it is a
normative belief.

Part B of Figure 2.4 elaborates the basic model and indicates
that attitude toward the act is an accurate predictor of a wide range
of behavioral intentions and behavior. This has been supported by
Ajzen and Fishbein; Brigham; and Albrecht.[30] The evaluative
importance of the consequences of the act is more clearly defined as
the product of an individual's normative beliefs concerning the act
and his motivation to comply with the belief.

Part C of Figure 2.4 addresses normative belief in more detail.
As illustrated, this component should be refined to differentiate
between an individual's personal belief and what he thinks society
(relevant others) says he should do. This distinction between
personal and group norms is important because of the potential for
conflict between the two.

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[29]Martin Fishbein, "A Behavior Theory Approach to the Relations
Between Beliefs About an Object and the Attitude Toward the Object,"
in Fishbein (ed.) Readings in Attitude Theory and Measurement (New
York: Wiley, 1967), pp. 389-99.

[30]Icek Ajzen and Martin Fishbein, "Attitudinal and Normative
Variables as Predictors of Specific Behaviors," Journal of Personality
and Social Psychology 27 (1973): 41-57; John C. Brigham, "Racial
Stereotypes, Attitudes, and Evaluations of and Behavioral Intentions
Toward Negroes and Whites," Sociometry 34 (1971): 360-380; Stan L.
Abrecht and Kerry E. Carpenter, "Attitudes as Predictors of Behavior
Versus Behavior Intentions: A Convergence of Research Traditions,"
Sociometry 39 (1976): 1-10.

Attitude toward the act of quitting (Aact) is separate and distinct from behavioral intent. Aact asks the question, "How does one feel about the act of quitting the organization? Is it a 'good' thing to do? Is it smart? Is this a beneficial thing to do?" Behavioral intent (B.I.) on the other hand, is a measure of what one plans, determines, or intends to actually do. Aact is an attitudinal measure; B.I. is a behavioral measure. Aact is the attitude toward the performance of a particular act and B.I., the immediate antecedent of overt behavior, is the determination to execute the act.

This difference is prevalent in the literature. Fishbein, in particular, has published numerous articles relating to the topic. He draws the distinction thusly:

> "On the one hand, a woman might believe that high pile carpeting is 'warm', 'comfortable', 'luxurious', and 'prestigious', and since she positively evaluates those attributes, she is likely to have a positive attitude toward high pile carpeting. On the other hand, what do you think the consequences of buying high pile carpeting are for that woman if she has two dogs, a cat, and three children under nine?[31]

Similarly, an individual may have negative feelings toward the Naval Reserve (it is boring, it takes time away from leisure on the weekend, friends think it is dumb or reactionary, the spouse resents it), but as a part-time job the pay is good and (most importantly)

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[31]Fishbein, 1971; quoted in Moore, 1978, p.34.

retirement benefits are outstanding. What would be the consequence of

quitting for an individual who has a significant amount of service

credited toward retirement? The 1980 Boykin study notes that as

longevity increases, the attitude toward the act of quitting becomes

more 'foolish' and 'harmful'.[32] This makes sense in terms of

Fishbein's research findings. As the Boykin study goes on to discuss,

Aact is good and rewarding because boredom and spouse opposition

increase with tenure, but it is increasingly economically foolish and

harmful because of the reward value for continued participation.

Steers and Mowday concur with Fishbein's line of reasoning. They

state, "Following from the work of Fishbein and others on attitude

theory, it is assumed that one's affective responses to the job lead

to behavioral intentions."[33] *They further state,*

> Included here would be Fishbein's
> notation of subjective normative
> beliefs, or how an individual
> would feel about his or her
> leaving. These non-work factors
> are often overlooked in turnover
> research but may, in fact,
> explain a greater proportion of
> the turnover variance than job
> attitudes.[34]

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[32]Milton L. Boykin and Hardy L. Merritt, 1980, p.37.

[33]Richard M. Steers and Richard T. Mowday, Employee Turnover
and Post-Decision Accomodation Processes, Technical Report 22
(Eugene: University of Oregon, 1979), p. 13.

[34]Ibid., p.14.

They conclude by stating ". . .Distinctions between desire to leave and intent to leave are presented by Mobley (1977); Horner and Hollingsworth (1978) and Hom, Katerberg and Hulin (1979)."[35]

Job Satisfaction

Job Satisfaction is defined as ". . .feelings or multiple affective responses to various facets of the job situation."[36] The definition and role of this concept in relation to performance and turnover behavior has been extensively debated in the literature. Both Vroom and Graen indicate that satisfaction is a montonically increasing function of the products of the instrumentatility of the work role for attaining certain outcomes and the desirability of attaining these outcomes.[37] Lawler and Porter additionally state that satisfaction is a function of performance and rewards as shown in Figure 2.2.[38]

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[35]Ibid., p.15.

[36]P.C. Smith, L.M. Kendall and C.L. Hulin, _The Measurement of Satisfaction in Work and Retirement_ (Chicago: Rand-McNally, 1969), p. 6.

[37]As noted in Tuttle and Hazel, p. 19.

[38]Lawler and Porter, 1968, p. 165.

According to their model, performance leads to both intrinsic and extrinsic rewards. Here is noted an important difference: since intrinsic rewards can be given by the worker himself, the relationship is more direct than the one between extrinsic rewards and performance. In addition, the relationship between rewards and satisfaction is dependent upon a perceived equity in reward level.

In an extensive review of the literature, Tuttle and Hazel state,

> In Vroom's (1964) model,
> satisfaction is future oriented
> and concerned with fulfillment
> which is expected. For Porter
> and Lawler (1968a), however
> satisfaction is concerned with
> fulfillment in the past and
> whether the fulfillment was
> "fair" or "equitable" according
> to some internal standard. Thus,
> it appears that the two
> conceptualizations of job
> satisfaction are different, and
> the differences are primarily in
> terms of orientation. The Porter
> and Lawler (1968a) model is
> oriented toward the past while
> Vroom's (1964) and Graen's (1969)
> models are more future
> oriented.[39]

Their theoretical review found that satisfaction is related to turnover, its relationship to performance is inconclusive, that

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[39]Tuttle and Hazel, p. 19.

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job satisfaction is multi-dimensional, and that studying specific

aspects of the concept rather than treating it as a global measure is

more likely to provide operationally useful results. This is in

agreement with the research of Smith, Kendall and Hulin and is

consistent with the strong relationships which have been documented

between work satisfaction and turnover.[40]

In 1977, William H. Mobley posited that job satisfaction is

indirectly related to turnover behavior through several intermediate

steps including throughts of quitting, an evaluation of the utility of

searching for other work, actual search, behavioral intention to quit

and overt resignation.[41] These relationships were tested in 1978 by

Mobley, Horner and Hollingsworth.[42] In this test, job satisfaction

was hypothesized to affect directly thoughts of quitting, search

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[40]Smith, et al., 1969; L. Porter and R. Steers,
"Organizational, Work, and Personal Factors in Employee Turnover and
Absenteeism", Psychological Bulletin 80, 1973, pp. 151-176; P.W. Hom,
R.W. Katerberg and C.L. Hulin, "The Prediction of Employee Turnover in
a Part-time Military Organization," Technical Report 78-2, Office of
Naval Research, 1978; W.H. Mobley, S.O. Horner and A.T. Hollingsworth,
"An Evaluation of the Precursors of Hospital Employee Turnover",
Journal of Applied Psychology 63, 1978, pp. 408-414.

[41]W.H. Mobley, "Intermediate Linkage in the Relationship
Between Job Satisfaction and Employee Turnover," Journal of Applied
Psychology 62, 1977, pp. 237-240.

[42]Mobley, et al., 1978.

intentions and intention to quit. Each of these variables, in turn, directly affected the following one. However, only intention to quit directly affected overt turnover behavior. They found that job satisfaction did not directly affect intention to quit, but its indirect influence through the intervening variables on behavioral intention was strongly supported.

In 1979,. Miller, Katerberg and Hulin replicated and validated the Mobley, et al. study with certain modifications utilizing data collected from the Illinois National Guard.[43] They found that ". . . The model is a powerful tool for turnover prediction in its own right and in comparison to three common models applied to turnover prediction."[44]

The model, illustrated in Figure 2.5, generated a multiple correlation of .55 between satisfaction and behavorial intention in contrast to a Fishbein model ($R^2=.42$), a Newman model ($R^2=.30$) and a Porter, Crampton and Smith model ($R^2=.34$), all of which were exercised using the same data.[45]

These findings indicate that job satisfaction is a major factor to be considered in research dealing with organizational participation and turnover behavior.

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[43]H.E. Miller, R.W. Katerberg and C.L. Hulin, "An Evaluation of the Mobley, Horner, Hollingsworth Model of Employee Turnover: Validation Data and Suggested Modifications", Technical Report 79-1, Office of Naval Research NR170-802, January 1979.

[44]Miller, et al., p. 19.

[45]Hom, et al., 1978, report these findings in connection with the Miller, et al. study.

Figure 2.5

THE MOBLEY, HORNER AND HOLLINGSWORTH MODEL
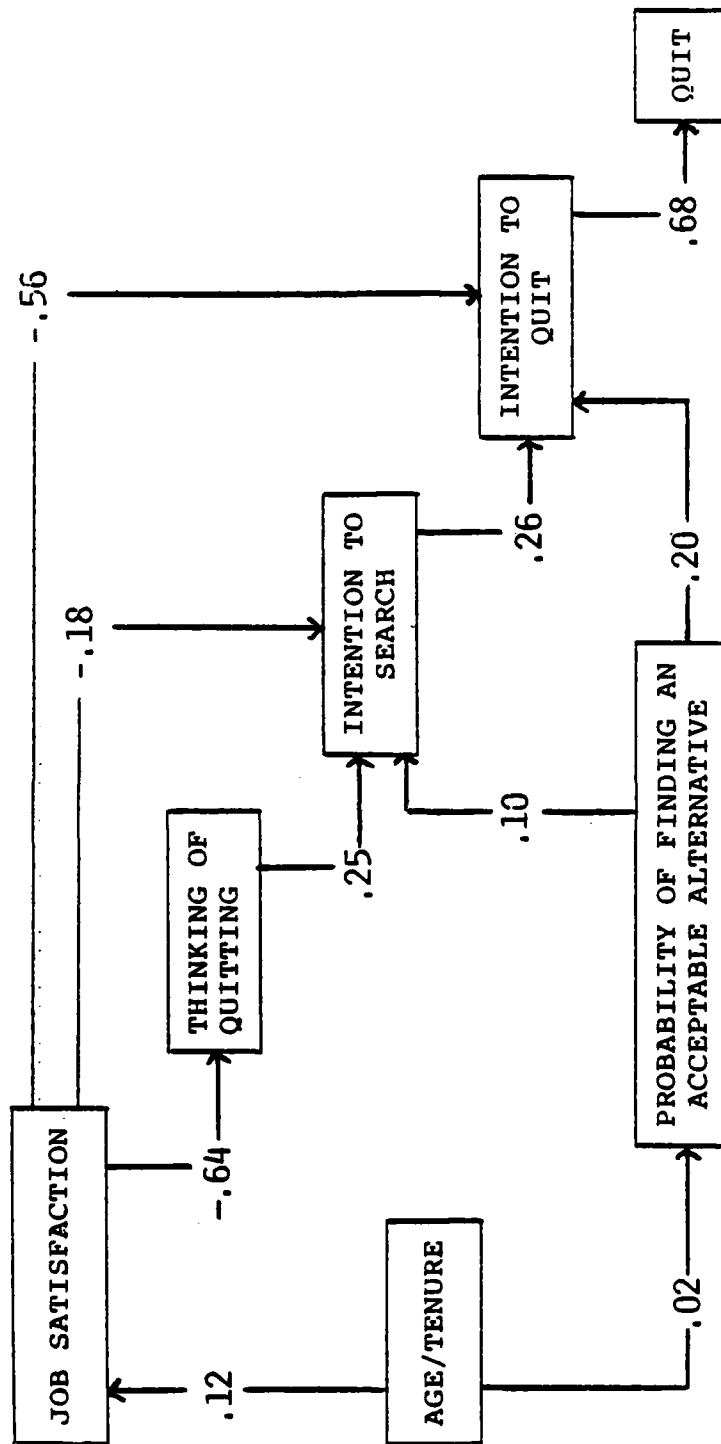
Organizational Cathexis

Cathexis is the relationship that exists between a person and an object which causes that object to become important to the person.[46] According to M. Scott Peck, "One may cathect any object, animate or inanimate, with or without a spirit. Once cathected, the object is invested with one's energy as if it becomes a part of oneself."[47] Organizations can be cathected just as can other individuals, money, etc.

Organizational cathexis is reflected in a set of behavioral patterns and attitudinal indicators ascribed to individuals occupying positions within organizations. Included in this definition are elements of concepts discussed in the literature of role theory and organizational commitment. A role is the expected behavior associated with a normative cultural pattern. According to Newcomb, Parsons, and Lieberman, a fundamental postulate of role theory is that an individual's attitudes are influenced by the role which that person occupies in a social system.[48]

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[46]M. Scott Peck, _The Road Less Traveled_ (New York: Simon and Schuster, 1978), pp. 116-120.

[47]Ibid., p. 117.

[48]T.M. Newcomb, _Social Psychology_ (London: Tavistock, Inc., 1952); Talcott Parsons, _The Social System_ (Glencoe: Free Press, 1951); S. Lieberman, "The Effects of Changes in Roles on the Attitudes of Role Occupants," _Organizational Behavior and Management,_ Tosi and Hamner, eds. 1977.

However, this must be viewed multi-dimensionally due to the fact that individuals play several roles concurrently because of the complex nature of modern society. Each role has certain rights and duties associated with the particular position held, and at times these roles may conflict.

Louis A. Zurcher, Jr. has differentiated the various roles which individuals assume in terms of "dominant" role and "ephemeral" role.[49] He further disaggregates the dominant role into two categories: operating dominant roles which are either previously abandoned roles or ideal, potential roles. He discusses ephemeral roles as "temporary or ancillary position-related behavior patterns chosen by the enactor to satisfy individual needs incompletely satisfied by the more dominant role."[50]

In the present study, one's position with the Naval Reserve is defined as an ephemeral role. Following Zurcher, the purpose of this is to examine the impact of Naval Reserve cathexis on participation level and turnover behavior.

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[49]Louis A. Zurcher, "The Naval Reservist: An Empirical Assessment of Ephemeral Role Enactment", Social Forces, March 1977, pp. 753-68; Louis A. Zurcher, "The Sailor Aboard Ship: A Study of Role Behavior in a Total Institution," Social Forces, March 1975, pp. 389-400.

[50]Zurcher, 1977, p. 753.

Lieberman discussed the distinction between the effects of roles on people's attitudes and the effect of roles on their actions.[51] Since actions are overt and directly observable, a person who fails to behave in ways appropriate to his role can be identified and counseled. Attitudes, however, are not overt. Although a person may behave in such a way as to reveal his attitudes, more often his behavior is a protection against such revelations. If one assumes a need for people to have attitudes that are internally consistent with their actions, a change in attitude will enable a role occupant to make a rational change in his actions. However, attitudes are antecedant to actions and must therefore be addressed via attitudinal modifications.

Lieberman found that attitudes are influenced by roles. Therefore, the decision to particpate must be addressed not only in terms of ephemeral role satisfaction, but additionally from an understanding of the role position of the individual in the Naval Reserve. Consistent changes in attitudes have been found when role positions are modified so as to provide such items as increased leadership capability and increased work responsibility.[52]

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[51]Lieberman, 1977.

[52]Lieberman, p. 171; S.A. Stouffer, E.A. Sushman, L.C. DeVinney, S.A. Star, and R.M. Williams, The American Soldier: Adjustment During Army Life, Vol. I (Princeton: Princeton University Press, 1949).

Organizational cathexis is reflected in an individual's commitment to an organization and that organization's perceived commitment to the individual. This commitment results in the organization becoming an important presence in the person's life. In 1974, Porter and associates defined this construct as a function of three factors:[53]

(1) A strong belief in and acceptance of the organization's values,

(2) A willingness to exert effort in support of the organization, and

(3) A desire to maintain membership in the organization.

They hypothesized that commitment represents a set of feelings which are closely affiliated with an employee's desire to remain attached to the workplace.[54] In testing this hypothesis, they found that commitment demonstrated greater effectiveness in predicting turnover than did five elements of job satisfaction.

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[53]L. Porter, R. Steers, R. Mowday and P. Boulian, "Organizational Commitment, Job Satis action and Turnover Among Psychiatric Technicians," *Journal of Applied Psychology* 39, 1974, pp. 603-609.

[54]Hom, Katerberg and Hulin, 1978, p. 4.

In 1978, Hom and associates attempted to validate Porter et al.'s findings in a study of the Illinois National Guard. In this test, they compared the relative efficacy of Fishbein's attitudinal research, Hulin's job satisfaction research, and the Porter, et al. model. They initially found that attitude toward the act of withdrawal, job satisfaction, and organizational commitment were all significantly correlated with the behavioral intention to quit, with commitment being stronger that satisfaction.[55] Further analysis indicated that the Porter, et al. measures contained both attitudinal and behavioral dimensions. After removing the behavioral intention dimension from the attitudinal measures, it was found that these measures reflected commitment to the organization as a whole and, while still significant, commitment was relatively less important than job satisfaction.[56]

Other studies have included measures of organizational cathexis (operationalized as role or commitment) as aspects of organizational life that could influence an individual's decisions. In a review of twelve such studies, Steers and Mowday state that such experiences have been shown to be related to participation and withdrawal. They constitute a form of experienced organizational reality which must be considered in analyzing individual activity in organizations.[57]

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[55]Ibid., pp. 11-12.

[56]Ibid., pp. 22-23.

[57]R.M. Steers and R.T. Mowday, "Employee Turnover and Post Decision Accomodation Processes," Technical Report NR 170-812, Office of Naval Research, 1979.

Reward Incentives; Pay and Retirement Benefits

Reward incentives are central to any discussion of participation in work organizations. Almost all analyses of the topic have included a measure of this factor as an explanatory variable. Of note is the work of Lawler and Porter, illustrated in Figure 2.3, wherein a differentiation is made between intrinsic and extrinsic rewards (i.e., non-pecuniary and pecuniary incentives). Intrinsic rewards are those perceived internally by the worker, such as satisfaction, self-esteem, status, love, and self-actualization. Extrinsic rewards are those which can be monetarized, such as salary, stock options, retirement pay, and expense accounts.

Portions of the literature are concerned with the individual's attitude towards pay in its various forms, and other portions deal more directly with the amount of pay itself. Horner, for example, treats incentives as a "met expectation" (Is the organization rewarding me now to the degree that I anticipated?).[58] Hulin and associates discuss the satisfaction dimension of pay (Am I satisfied with my pay level?).[59] Lawler and Porter, elaborating upon earlier work by Vroom,

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[58]S. O. Horner, "The Effects of Expectations Through Realistic Job Previews (RJP's) on Marine Corps Attrition." Paper presented at the American Psychological Association Meeting, New York, September, 1979.

[59]Smith, et al., 1969; Hom, et al., 1978; Katerberg, et al., 1978; Miller, et al., 1979.

emphasize an effort-rewards probability (What level of effort is required to obtain a desired reward incentive?).[60]

Econometric analyses of participation tend to concentrate on the amount of money necessary to attract and retain workers and on the form of the incentive (current salary, deferred pay, retirement benefits). This approach is similar in some respects to that taken by Maslow, who identified financial security as a lower-level need which must be satisfied prior to treating higher-order needs such as self-actualization.[61] It is also somewhat similar to Herzberg who defined pay as a dissatisfier, the negative impact of which must be reduced by adequate pay levels.[62] It should be noted, however, that according to Herzberg, increasing pay does not positively motivate workers to ever-increasing levels of performance.

Reviews of various theories of money have generally concluded that the role of money is as a vehicle for attaining other desired outcomes.[63] As stated by Aldag and Brief,

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[60]Vroom, 1964; Lawler and Porter, 1968.

[61]A. Maslow, "A Theory of Human Motivation," _Psychological Review_ 50, 1943, pp. 379-396.

[62]F. Herzberg, _Work and the Nature of Man_ (New York: World Publishing, 1966).

[63]R. L. Opshal and M. D. Dunnette, "The Role of Financial Compensation in Industrial Motivation," _Psychological Bulletin 66_, 1966, pp. 94-118; E. E. Lawler, _Pay and Organizational Effectiveness_ (New York: McGraw-Hill, 1971).

Money can, for example, buy such material existence goods as food and thus serve to fulfill employees' existence needs. Money can also be a vehicle for fulfilling relatedness needs, as when an employee uses money to purchase theater tickets for an evening out with friends. Finally, if employees view money as a gauge of personal development, it may play a role in the fulfillment of growth needs by serving as a yardstick of personal achievement.[64]

There are dangers in overemphasizing money as an incentive to work. In a 1969 policy analysis, Green and Tella found that while a negative income tax is a disincentive to work, many individuals would prefer to be employed regardless of a guaranteed income.[65] This was confirmed by Davis in 1975, who found that 63 percent of adults sampled in a national survey would continue to work if they were to become financially independent.[66] Money is important as a means to an end, but it is not the only factor in motivating employees.

Recent research in a military context has tended to separate current pay from retirement benefits. This is due to the fact that the two are funded independently and are targeted at different constituencies. In a lengthy study of the Reserve Compensation System, the Office of the Deputy Assistant Secretary of Defense for Manpower and Reserve Affairs

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[64]Aldag and Brief, 1979.

[65]C. Green and A. Tella, "Effect of Non-Employment Income and Wage Rates on the Work Incentives for the Poor," Review of Economics and Statistics 51, 1969, pp. 399-408.

[66]J. A. Davis, Spring 1975 General Survey: National Data Program for the Social Sciences (Ann Arbor: Inter-University Consortium for Political Research, 1975), quoted in Aldag and Brief, p. 12.

concluded that it would be cost-beneficial to reduce retirement benefits and shift compensation to current pay.[67] This recommendation was supported by a series of narrowly-focused econometric analyses of wage elasticities conducted both in-house and by the Rand Corporation.[68] These reports concentrated on reducing federal outlays without sufficient regard for the adverse impact implementation would have on the manning levels of the military Reserves.

Fortunately, a separate section within the Office of the Secretary of Defense initiated a national survey of the Army Reserve in 1978 to analyze the impact of pay on manning. It concluded that a 50 percent increase in Reserve pay would raise reenlistment rates by only 4 percent. Significantly, they found that ". . . retirement benefits can substantially increase Reserve participation."[69]

From this review, it is apparent that reward incentives are legitimate factors to consider in analyses of organizational participation, and that pay and retirement benefits are appropriate incentive elements to investigate in relation to military participation.

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[67] Office of the Deputy Assistant Secretary of Defense for Manpower and Reserve Affairs, Reserve Compensation System Study, Washington, D.C., 1978 (4 vols.).

[68] K. C. Alderman, "Selected Reservists' Labor Market Characteristics and Elasticities: A Review of Recent Evidence," Office of the Assistant Secretary of Defense (MRA&L), Washington, D.C., 1979. The Rand studies are reviewed here.

[69] Office of the Assistant Secretary of Defense (MRA&L), "The 1978 Selected Reserve Reenlistment Bonus Test," Executive Summary, Washington, D.C., 1982.

Influence of Relevant Others

This concept is grounded in Fishbein's work as illustrated in Part C of Figure 2.4.[70] It addresses an individual's perception of the opinions of highly regarded others concerning what actions the individual should take. Fishbein termed this a normative belief and differentiated it from an individual's personal belief of what action he should take.

Hom, Katerberg, and Hulin operationalized the concept by asking subjects to rate: "People who are important to me and whose opinions I value think I should reenlist in the National Guard at the next opportunity." They were asked to indicate on a 7-point scale the degree to which four groups of relevant others . . . friends, family, military superiors, civilian employer . . . thought that the subject should reenlist. These four normative beliefs were summed to provide an overall measure of the concept.[71] They found that this measure was highly related to behavioral intention, with a Pearsonian correlation of .69.[72]

In a summary of earlier modeling attempts relative to organizational participation, Steers and Mowday noted that non-work influences were

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[70]Ajzen and Fishbein, 1973.

[71]Hom, et al., p. 8.

[72]Ibid., p. 11.

often overlooked in such efforts, specifically in the area of spouse needs and other family considerations.[73] In an earlier review, Sussman and Cogswell stated that,

> "The greater the demand for workers, the greater is the consideration given to spouses, the needs of children, linkages with kin, and friendships."[74]

Following this approach, Turner found in a 1980 study of turnover behavior in the Regular Navy that family ties have great salience for withdrawal activity.[75] Similarly, research sponsored by the Assistant Secretary of Defense has found that intangible factors such as fraternal influences within the organization encourage participation.[76] Additionally, the Mobley, et al. conceptual analysis of the employee turnover process states that, "Three of the summarized studies indicate that family responsibility, including marital status, is associated with decreased turnover."[77] They include this in a list of individual variables impacting turnover behavior.

These findings indicate that the influence of relevant others is a factor which should be considered in studies of organizational participation. The approach used by Hom, et al. appears to be valid and will be used herein.

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[73]Steers and Mowday, 1979, p. 14.

[74]M. B. Sussman and B. E. Cogswell, "Family Influences on Job Movement," Human Relations 24, 1971, pp. 477-487.

[75]S. B. Turner, "A Model to Predict Retention and Attrition of Hispanic-Americans in the Navy," Technical Report 170-897, Office of Naval Research, 1980.

[76]OASD (MRA&L), 1982, p. 17.

[77]Mobley, et al., 1978, p. 5.

Socioeconomic Status Factors

Included in this category are income level, education, tenure, perceived social class, and occupational groupings. Although there are minor variations in the composition of this list, many investigators have found a correlation between measures of socioeconomic status and organizational participation.[78]

Verba and Nie have proposed a "standard socioeconomic model of participation" in their ongoing research concerning participation in political activities and organizations.[79] This model indicates that increased levels of the components of socioeconomic status are generally accompanied by more positive attitudes toward organizational lifestyles. These positive orientations tend to move the individual to higher levels of participation. Their measures of socioeconomic status are based principally on income, perceived social class, education level and occupation.[80]

Tenure was cited in the Mobley, et al. review as having a negative relationship to turnover behavior. They noted that a 1973 study by

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[78]Mobley, et al., 1978, p. 5, comment that while age has on occasion been included, the amount of variance explained by it standing alone is insignificant. Similarly, Mangione, 1973, found no significant relationship between an individual's sex and turnover activity.

[79]S. Verba and N. H. Nie, Participation in America (New York: Harper and Row, 1972). This theme is pursued in N. Nie, S. Verba and J. R. Petrocik, The Changing American Voter (Cambridge: Harvard University Press, 1976) and S. Verba, N. H. Nie and J. Kim, Participation and Political Equality: A Seven Nation Comparison (Cambridge: Cambridge University Press, 1978).

[80]Nie, Verba and Petrocik, 1976, pp. 210-217.

Mangione concluded that length of service was one of the best predictors of turnover.[81] In the military, tenure is externally indicated by rank. Longenecker discussed the relationship of rank and status as follows:

> Status levels are indicated by external indicators closely connected to the individual. Military rank is very open in that it allows any observer to detect the status of the individual immediately even though he knows very little about the individual wearing the insignia.[82]

William F. Whyte's classic study of the restaurant industry indicated that status is largely determined by work-related materials and by occupational categories. For example, the salad chef was accorded more status than preparers of beef dishes, who were, in turn, accorded more status than preparers of chicken dishes, indicating the importance of the occupational groupings.[83] Additionally, socioeconomic status determinants have been identified by Litterer as (1) education level, (2) ranked position, and (3) income level.[84]

Individual socioeconomic difference measures have been included in the participation and turnover models of Mobley, et al., Tuttle and Hazel, and Steers and Mowday, reflecting the importance of these measures as partial determinants of individual behavior in organizations.[85] It is, therefore, appropriate to include such measures in this investigation.

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[81]Mobley, et al., 1978, p. 5.

[82]Longenecker, 1973, p. 368.

[83]W. F. Whyte, Human Relations in the Food Industry (New York: McGraw-Hill, 1948).

[84]J. A. Litterer, The Analysis of Organizations (New York: Wiley, 1965).

[85]Mobley, et al., 1978; Tuttle and Hazel, 1979; Steers and Mowday, 1979.

Leadership Style

Theories of leadership usually fall under one of three general headings: trait theory, style theory, and contingency theory. As noted by Charles B. Handy, each of these seems to contain elements of truth, but in the final analysis of real-world applications they have failed to explain major differences between effective and ineffective leadership in a global sense. According to Handy, ". . . the search for the definitive solution to the leadership problem has proved to be an endless quest for the Holy Grail in organization theory."[86]

Trait theory, as illustrated by Chester Barnard and by Wald and Doty, rests on the assumption that distinguishing characteristics of successful leaders can be identified.[87] Effective leaders can then be chosen by selecting those individuals who possess the identified characteristics. According to Handy, of one hundred studies done by 1950, only 5 percent of the identified traits were common to a majority of the studies.[88] He

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[86]C. B. Handy, _Understanding Organizations_ (London: Penguin Books, Ltd., 1978), p. 88.

[87]C. I. Bernard, _The Functions of the Executive_ (Cambridge: Harvard University Press, 1938); R. M. Wald and R. A. Doty, "The Top Executive: A First Hand Profile," _Harvard Business Review 32_, vol. 4.

[88]Handy, 1978, p. 90.

concluded that trait theory failed because of two reasons: (1) the traits are so ill-defined as to be useless in practice and (2) the theory implies an elite corps of managerial talent, which is inimical to a democratic culture wherein the path to top management is available to all competitors.[89]

Style theories are broadly based on the assumption that leadership exists on a continuum ranging from authoritarianism to democracy.[90] Implicit in this conceptualization are the Human Relations assumptions of Douglas McGregor and Rensis Likert that employee participation in leadership decisions is the desired mode of operation.[91] McGregor distinguished between the open, supportive, and consultative type of leader (Theory Y) and the rigid, authoritarian, and punitive (Theory X) leader. Likert called for participation by the group in decisions at their own group level and representation by the supervisor at the next level in the hierarchy. By definition, authoritarian leaders are strongly task oriented, while democratic leaders provide maximum freedom for

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[89]Ibid.

[90]R. Tannenbaum and W. H. Schmidt, "How to Choose a Leadership Pattern," noted in P. Hersey and K. H. Blanchard, Management of Organizational Behavior: Utilizing Human Resources, 3rd ed. (Englewood Cliffs: Prentice Hall, 1977), p. 92.

[91]D. McGregor, The Human Side of Enterprise (New York: McGraw-Hill, 1960); R. Likert, New Patterns of Management (New York: McGraw-Hill, 1961).

employee self-actualization.[92]

In this context, R. J. House developed a path-goal theory of leadership wherein the function of the leader is to enhance psychological states that lead to increased motivation.[93] As summarized by Katz et al., this is accomplished by identifying employees' needs, increasing payoffs for goal attainment, reducing barriers to employee attainment of goals, defining paths to goals, and increasing opportunities for employee satisfaction.[94] The unstated assumption is that authoritarianism obstructs employee-leader interactions necessary for goal attainment. Other motivational research in this vein includes House and Dressler, Oldham, and Graen.[95]

Contingency theories make the assumption that effective leadership style is contingent upon both the type of task to be accomplished and the psychological predispositions of the employees engaged in the work. As initially presented in the Ohio State Leadership Studies, a supervisor's

[92]D. Katz, R. L. Kahn and J. S. Adams, The Study of Organizations (San Francisco: Jossey-Bass, 1980).

[93]R. J. House, "A Path-Goal Theory of Leadership Effectiveness," Administrative Sciences Quarterly 16, 1971, pp. 321-338.

[94]Katz, et al., p. 360.

[95]R. J. House and G. Dressler, "The Path-Goal Theory of Leadership: Some Post Hoc and A Priori Tests," Contingency Approaches to Leadership (Carbondale: SIU Press, 1974); G. R. Oldham, "The Motivational Strategies Used by Supervisors," Organizational Behavior and Human Performance 15, 1976, pp. 66-86; G. Graen, "Effects of Linking Pin Quality on the Working Life of Participants," Administrative Sciences Quarterly 22, 1977, pp. 491-504.

leadership style is comprised of two dimensions---initiating structure, measured as low to high task orientation, and consideration, measured as low to high employee interpersonal involvement.[96] These are distinct dimensions plotted along separate axes rather than along a single authoritarian-democratic continuum. The task at hand and the type of employees define an optimum mix of the two qualities. Blake and Mouton have used this concept extensively in their development of the Managerial Grid.[97] Following their work, W. S. Reddin added a third dimension of 'managerial effectiveness' to the two-dimensional construct in order to demonstrate that a variety of leadership styles may be effective, depending upon the situation.[98]

Fred E. Fiedler is perhaps the most well-known of the contingency theorists. Paralleling and elaborating upon Reddin's work, he concentrated on the relationship between the leader and the group and on the structure of the task as determinants of the most effective style of leadership.[99] After examining leadership in a wide range of organizations, he found that a high task orientation was most effective when the situation was either very favorable or very unfavorable to the

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[96]Hersey and Blanchard, 1977, pp. 94-95.

[97]R. R. Blake and J. S. Mouton, The Managerial Grid (Houston: Gulf Publishing, 1964).

[98]W. S. Reddin, "The 3-D Management Style Theory," Training and Development Journal (April 1967), pp. 8-17.

[99]F. E. Fiedler, A Theory of Leadership Effectiveness (New York: McGraw-Hill, 1967).

leader. Moderately favorable situations lent themselves best to a supportive, consideration orientation. Favorable situations included the leader being liked and trusted, the task being well defined, and the leader having clear authority to reward and punish. Of these, Fiedler viewed the first to be the most important.

Fiedler's general conclusions were that organizations could increase leadership effectiveness by structuring the task, increasing the authority of the leader, or changing the composition of the group in order to improve the favorableness of the work environment.[100] While these conclusions are appealing intuitively and are descriptive of the particular organizations studied, they appear to have little predictive significance. As noted by Handy, "There is doubt as to whether Fiedler's measure (Least Preferred Coworker) really measures what he says it does, or whether it is really co-terminus with a structuring authoritarian style."[101]

In response to Fiedler's main thesis that effective leadership style is contingent upon the particular characteristics of the work environment, Charles Perrow states,

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[100]Noted in Handy, 1978, p. 94.

[101]T. R. Mitchell, "The Contingency Model," _Academy of Management Journal_, vol. 13, 1970; and M. G. Evans and J. D. Derner, _What Does the LPC Scale Really Measure?_ (unpublished manuscript), both noted in Handy, 1978, pp. 398-400.

Fiedler notes that other variables--such as member abilities and motivation, group heterogeneity, expertness of the leader, his familiarity with the task, and his familiarity with the group--are likely to be important. No doubt there are others which would turn up when research is conducted on still more groups. If so, with what are we left?[102]

He concludes by saying,

The increase in complexity has resulted in a decrease in applicability and in theoretical power. We are now in a situation where the variables are so numerous and complex that we can hardly generalize to organizations or even types of organizations.[103]

Similar criticism has been leveled at other contingency analyses which are derivative of the Ohio State Leadership Studies. In a review of twenty-five such studies, A. K. Korman concluded:

Despite the fact that "Consideration" and "Initiating Structure" have become almost bywords in American industrial psychology, it seems apparent that very little is now known as to how these variables may predict work group performance and the conditions which affect such predictions. At the current time, we cannot even say whether they have any predictive significance at all.[104]

In an effort to improve the predictive capability of leadership research, Vroom and Yetton devised a formal decision tree which spells out five types of decision processes ranging from authoritarian to

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[102]C. Perrow, Complex Organizations: A Critical Essay (Glenview, Ill.: Scott, Foresman Co., 1979), p. 106.

[103]Ibid., p. 110.

[104]A. K. Korman, "Consideration, Initiating Structure and Organizational Criteria - A Review," Personnel Psychology 19, 1966, p. 360.

democratic.[105] Using this approach, they examined kinds of problems

that suggest rules or criteria for decision making, emphasizing contingent

conditions for the exercise of small group democracy. They found that if

the decision is important to the effectiveness of the organization and the

leader lacks adequate information, then authoritarian leadership is ruled

out. Conversely, if subordinates do not share organizational goals, then

democratic decision making is ineffective. These findings were supported

by Vroom and Jago in 1978.[106]

Katz and associates have critiqued the Vroom and Yetton work, stating

that while their assumptions are valid for groups organized along

democratic lines, the arguments suffer from circularity in the development

of certain rules. For example, the rule that an ill-informed manager

should seek information is tautological.[107] Likewise, Mohr notes that,

although this is the most forceful demonstration of leadership contingency

analysis to date, the characteristics of the leader position . . . "do not

relate in a constant way to his or her behavior."[108] Handy adds that,

"It is too mechanistic and limited in that it deals only with formal

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[105]V. H. Vroom and P. W. Yetton, Leadership and Decision-Making
(Pittsburg: University of Pittsburg Press, 1973). The
authoritarian-to-democratic range of the decision tree is analyzed in
Katz, et al., 1980, pp. 362-363.

[106]V. H. Vroom and A. G. Jago, "On the Validity of the Vroom-Yetton
Model," Journal of Applied Psychology 63, 1978, pp. 151-162.

[107]Katz, et al., 1980, p. 363.

[108]L. B. Mohr, Explaining Organizational Behavior (San Francisco:
Jossey-Bass, 1982), p. 147.

decision-making acts of the leader."[109]

In response to the difficulties arising from adding a multiplicity of contingent dimensions to situationally specific leadership analyses, Handy argues that these dimensions are subsumed in the authoritarian-democratic continuum. McGregor's Theory X - Theory Y fits easily, as do the Ohio State Studies and elaborations concerning 'Initiating Structure' and 'Consideration'. Likert's arguments are based on the Human Relations assumption that democratic leadership is 'good' and authoritarianism is 'bad'. Likewise, Vroom and Yetton place their arguments in a democratic context. As Handy concludes, "These major theories can be very broadly classified under authoritarian or democratic (processes), although their authors would rightly claim that there is more to them (as one refines the level of analysis)."[110] This will be the approach taken herein.

Expectancy

Vroom defines expectancy as a probalistic concept indicating an individual's subjective probability that performing an act will lead to a particular first level (organizational) outcome. Lawler and Porter define expectancy as an effort-rewards probability which refers to a subjective

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[109]Handy, 1978, p. 399.

[110]Ibid., p. 91.

expectancy that a desired reward will follow from putting forth certain
levels of effort. Smith, Kendall, and Hulin incorporate the concept in
their measurement of job satisfaction by associating a perceived
difference in what is expected (future expectancies) with what is
experienced (met expectations). Steers and Mowday, noting Porter and
Steers, define expectancy in much the same terms by discussing "the extent
to which an individual's expectations and values surrounding a job are met
by one's organizational experiences."[111] However, they separate this
from job satisfaction. Cummings and Dunham decided to resolve these
ambiguities by eliminating expectancy entirely from their work in favor of
the Index of Organizational Reactions which assesses satisfaction with
work, pay, promotions, co-workers, supervision, amount of work, physical
conditions, and company policies.[112]

Possibly the most lucid approach to expectancy has been provided by
William H. Mobley. In 1973 he and H. Peter Dachler published the results
of their attempts to add specificity to an instrumentality-
-expectancy-task-goal model by focusing on employee decision processes in
two organizations.[113] In this analysis, they called attention to the
many inconsistencies in the measures used to test theory by various

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[111]Steers and Mowday, p. 4.

[112]Smith, et al., 1969.

[113]H. P. Dachler and W. H. Mobley, "Construct Validation of an
Instrumentality-Expectancy-Task-Goal Model of Work Motivation," Journal of
Applied Psychology 58, 1973, pp. 397-418.

researchers and offered specific, quantifiable definitions of the concepts under study. In particular, they defined expectancy as "a person's subjective probability, or the perceived likelihood that ne can perform at a given level of performance."[114] Each given level of performance possesses a usefulness or attractiveness which is defined as "utility." Instrumentality is defined as a set of performance-work outcome probabilities, and valence is defined as work outcome desirability. The model specifies further that: "the expectancy for a level of performance should be multiplied by the utility of that level of performance to result in the expected utility for that level of performance."[115] Motivation should be highest for a level of performance which has the "highest expected utility" to a worker in the acnievement of a specific task goal.

The concept of expectancy as expected utility was further developed in 1978 by Mobley, Griffeth, Hand and Meglino. In a conceptual analysis of the relevant literature, they discussed the attraction-expected utility of the present job and the attraction-expected utility of alternative jobs. They pointed out that these concepts roughly correspond to the March and Simon components of "desirability of leaving" and "ease of movement."[116]

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[114]Ibid., p. 398.

[115]Ibid., p. 399.

[116]Mobley, et al., 1978, p. 30.

Concerning expectancy, they stated:

> While satisfaction is _present_ oriented, attraction
> is considered to be _future_ oriented. Attraction is
> seen as being based on the expectancies that the job
> will lead to _future_ attainment of various positively
> and negatively valued outcomes. When combined with the
> expectancy of being able to retain the present job, an
> index can be generated analogous to Vroom's (1964)
> "force" for a single alternative, and the "expected
> utility" index of Dachler and Mobley (1973) or Graen
> (1976). While many studies have analyzed the
> satisfaction-turnover relationship, the dual
> contribution of satisfaction _and_ expected utility to
> turnover has not been researched.[117]

The expectancy index used herein is drawn from this literature.
The score reflects the degree to which the respondents believe that
their continued participation in the Naval Reserve will yield
positively-valued outcomes. It is future-oriented; it addresses the
future attainment of various positively and negatively valued
outcomes. However, it is at best an imperfect measure of the
Mobley-based concept of expectancy. It does not, for example, measure
the attraction-expected utility of job-alternatives, nor is there a
measure of instrumentality.

This chapter has presented the variables most commonly used in the
literature of organizational behavior to explain participation and
turnover behavior. The next chapter will present non-recursive path
analysis as a modeling technique which can be utilized to structure
the interaction of these variables, thereby isolating the independent
influence of each on an individual's organizational participation
decisions.

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[117]_Ibid._, p. 28.

CHAPTER THREE

THE METHODOLOGY OF PATH ANALYSIS

Introduction

It has been said that a major shortcoming of public policy research

has been the failure to develop and use causal theory.[1] It is desirable

for research to extend beyond simple associative techniques in order to

understand better the consequences of public policies. Path analysis is

a quantitative procedure which provides this opportunity through the

development and testing of causal models. These models explicate the

relationships between public policies and their impacts.[2] This

technique provides an estimate of the explanatory power of causal models,

it identifies spurious relationships with some degree of confidence, and

it illustrates the comparative power of both the direct and indirect

influences of independent or intervening factors on dependent variables.

Furthermore, it allows analysts to avoid what Elinor Ostrom has labeled

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[1]Thomas R. Dye and Neuman F. Pollack, "Path Analytic Models in
Policy Research," Policy Studies Journal 2 (Winter 1973), No. 2, pp.
123-130, reprinted in Scioli and Cook, p. 113-130; Robert Salisbury,
"The Analysis of Public Policy: The Search for Theories and Roles,"
in Austin Ranney (ed.) Political Science and Public Policy (Chicago:
Markham, 1968), pp. 151-178.

[2]Dye and Pollack, p. 113.

the "single indicator trap" by measuring the output of public policies
in more than one context.[3]

Recursive Path Analysis[4]

Recursive path estimation is currently the most widespread path
analytic technique now in use because of its compatibility ". . . with
the existing statistical skills of policy analysis."[5]

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[3]Elinor Ostrom, "The Need for Multiple Indicators in Measuring
the Output of Public Agencies," Policy Studies Journal 2 (Winter
1973), pp. 87-92.

[4]The methodology of path analysis is not new. However, its
application to policy analysis is just beginning. For a full
elaboration of this technique, see Sewall Wright, "Correlation and
Causation, Journal of Agricultural Research 20 (1921), pp. 557-585; H.
E. Niles, "Correlation, Causation, and Wright's Theory of Path
Coefficients," Genetics 7 (1922), pp. 258-273; J. E. Tukey,
"Causation, Regression, and Path Analysis," in Oscar Kempthorne (ed.),
Statistics and Mathematics in Biology (New York: Hafner Publishing
Co., 1954); M. E. Turner and Charles D. Stevens, "The Regression
Analysis of Causal Paths," Biometrics 15 (1959), pp. 236-238; O. D.
Duncan, "Path Analysis: Sociological Examples," American Journal of
Sociology 72 (1966), pp. 1-16; Hubert M. Blalock, "Causal Inferences,
Closed Populations, and Measures of Association," American Political
Science Review 61 (1967), pp. 130-136; A. S. Goldberger, "On Boudon's
Method of Linear Causal Analysis," American Sociological Review 35
(1970), pp. 97-101; H. M. Blalock, ed., Causal Models in the Social
Sciences (New York: Aldine-Athertine, 1971).

[5]Donald S. Van Meter and Herbert B. Asher, "Causal Perspectives
in Policy Analysis," in Scioli and Cook, p. 65.

Several major studies reflect this orientation[6] In order to accomplish this form of path analysis, certain assumptions similar to those necessary for multiple regression must be made:

1. Linear and additive relationships
2. Ordered metric data
3. Uncorrelated disturbance terms
4. No confounding unincluded variables
5. Inclusion order of variables based on prior theory
6. No reciprocal causation

It is critical that path analytic models be anchored in prior theory. As stated by Forbes and Tufte, "The structure of the model...must be decided before a test of the existence...of any particular line is possible."[7] The causal ordering of variables and their inclusion in statistical procedures such as multiple regression must be done in a context which is relevant to previously developed theory relating to their posited relationships. In like manner, it is

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[6]Donald E. Stokes, "Some Dynamic Elements in Contests for the Presidency," American Political Science Review 60 (1966), pp. 19-28; Arthur S. Goldberg, "Discerning a Causal Pattern Among Data on Voting Behavior," American Political Science Review 60 (1966), pp. 913-22; Donald F. Stokes, "Compound Paths in Political Analysis," in J. F. Herndon and J. L. Bernd, Eds., Mathematical Applications in Political Science 5 (Charlottesville: The University Press of Virginia, 1971), pp. 70-92; Gary L. Tompkins, "A Causal Model of State Welfare Expenditures," Journal of Politics 37 (1975), pp. 392-416; Dale C. Nelson, "Ethnicity and Socioeconomic Status as Sources of Participation: The Case for Ethnic Political Culture," American Political Science Review 73 (1979), pp. 1024-38; Jerry Perkins and Diane L. Fowler, "Opinion Representation Versus Social Representation; or, Why Women Can't Run as Women and Win," American Political Science Review 74 (1979), pp. 92-103; David Lingman, "Temporal and Spatial Diffusion in the Corporate Analysis of Change," American Political Science Review 74 (1980), pp. 123-137; Daniel A. Mazmanian and Paul A. Sabatier, "A Multivariate Model of Public Policy-making," American Journal of Political Science 24 (1980), pp. 439-468.

[7]JHugh D. Forbes and Edward R. Tufte, "A Note of Caution in Causal Models," American Political Science Review 62 (1968), p. 1259.

necessary to avoid the "partialling fallacy" wherein many variables

are correlated indiscriminately without regard for theoretical

justification.[8]

To clarify these assumptions, a simple, three variable model

adapted from van Meter and Asher's study shown in Figure 3.1. The

posited theory is that both X_1 and X_2 influence X_3. It is also

posited that X_1 is logically prior to X_2 and that it therefore

influences X_3 both directly (main effect) and indirectly (indirect

effect) through first influencing X_2. R_u and R_v are residual

disturbance terms which, by assumption 3, are uncorrelated with X_1

or with each other.

The 'p' terms are path coefficients which are estimated from a

series of simultaneous regression equations in which the dependent

variable is first regressed against all other variables and then

mediating variables are treated sequentially as dependent variables.

These terms are standardized beta weights and are obtained by dividing

the 'b' value by the standard deviation of the dependent variable.

The total effect of one variable on another can be found through

decomposition such as in the following equation: $r_{13} = p_{13} +$

$p_{21}p_{22}$. This gives the total effect of X_1 on X_3 in the

example. The paths from the R terms are obtained by taking the square

root of the unexplained variance in the multiple regressions.

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[8]Hubert Blalock, Causal Inferences in Nonexperimental Research,
(New York: W. W. Norton and Co., 1964), p. 67.

Figure 3.1

A RECURSIVE MODEL

$$X_1 \xrightarrow{\quad p \quad} X_2 \xleftarrow{} R_u$$

p

p

$$X_3 \xleftarrow{} R_v$$
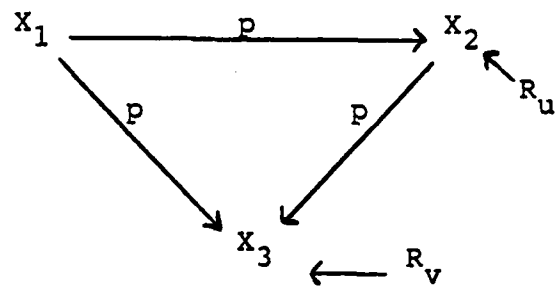
These R terms represent the effects of all unincluded/unmeasured influences. The adequacy of the model should be judged not only by the size of the total explained variance, but by the accuracy of its congruence with the theory on which the model is based.[9] An advantage of path analysis is that it enables the researcher to refine conceptual theory in the pursuit of elegance. Paths can be eliminated whenever:

1. The conceptual model explicitly precludes the existence of a relationship.[10]

2. Inspection of the data verifies that one variable is a replication of another variable.[11]

3. The path evidences only weak explanatory power.[12]

Path elimination is the primary purpose of the first set of multiple regressions. All paths which do not make a significant contribution to variation in the dependent variable are eliminated. A revised model containing only influential paths is then constructed and a new set of regression equations is recalculated. Path elimination and recalculation are continued until a model is developed which is both theoretically satisfying and statistically valid. In causal models developed by this technique there may well be a number

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[9]Dye and Pollack, p. 115.

[10]Blalock, Causal Inferences, pp. 61-94.

[11]Goldberger, pp. 97-101; Nelson, pp. 1030-31.

[12]Blalock, Causal Inferences, Chapter 3. Tompkins (p. 407) uses a .20 beta weight as a rule of thumb for eliminating paths. Dye and Pollack (p. 115) state that a path can be eliminated if the standard error of a value is greater than the b value itself.

of plausible alternatives which will yield approximately the same

predictive power as the one under scrutiny. Dye and Pollack caution

that:

> One can only proceed by _eliminating_ hypothesized
> but inadequate models. It is ordinarily impossible to
> rule out all of the logical alternative models. Thus,
> in a sense, one can never 'establish' a particular
> causal model.[13]

Thus, the critical importance of first developing a theoretical basis

for a particular causal model is again emphasized. Recursive path

analysis is a technique for developing degrees of confidence in stated

theory. It should not be used either to initiate such conceptual

development or to be the ultimate "proof" of such theory.

The assumption of no reciprocal causation is a limiting factor in

that it disallows an examination of the conceptual relationships now

being identified in both organization theory and the policy impact

literature as being generally important to policy impact analysis.

Dye and Pollack state:

> As policy research becomes increasingly
> theory-oriented, it will require increasingly complex
> causal models and appropriate methodologies to test
> these models. By increasing model complexity, path
> analysis can provide a useful technique for the study
> of policy impact.[14]

They conclude that policy measures can be portrayed in causal

models and that path coefficients can allow one to compare the direct

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[13]Dye and Pollack, p. 116.

[14]_Ibid._, p. 120.

and indirect effects of the measures on policy outcomes. However, as van Meter and Asher point out, this goal cannot be achieved through the use of recursive modeling because of the unrealistic omission of feedback processes and reciprocal causal influences.[15] Therefore, research should be refocused on the use of nonrecursive techniques.

Nonrecursive Path Analysis

Nonrecursive path estimation more accurately approximates the complex processes which are of interest to policy impact analysis by specifying a general set of variables which are believed to be mutually endogenous, i.e., they mutually affect each other. Using van Meter and Asher's example again, a more realistic analysis might result in the model illustrated in part A of Figure 3.2. However, it is hopelessly underidentified; that is to say, there are only three observable relationships among the endogenous variables which are available to estimate the five causal processes of theoretical interest. Additionally, the error terms are no longer uncorrelated due to the indirect influences of one or the other via their impact on the variables. The latter difficulty can be resolved, according to van Meter and Asher and Page and Jones, by allowing the residual terms to be mutually correlated.[16] "By doing so, the researcher is allowed the opportunity to portray more adequately complex processes and to avoid implausible assumptions. In nonrecursive models, we can

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[15]van Meter and Asher, p. 67.

[16]van Meter and Asher, p. 67-69; Page and Jones, p. 1079.

Figure 3.2

NONRECURSIVE MODEL

A. Underidentified Model:
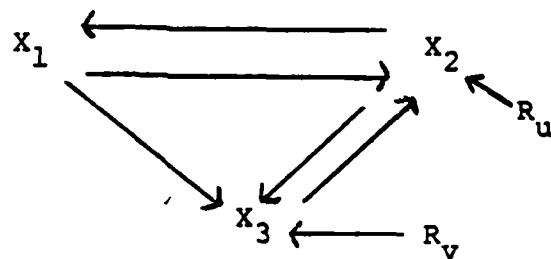
B. Fully Identified Model
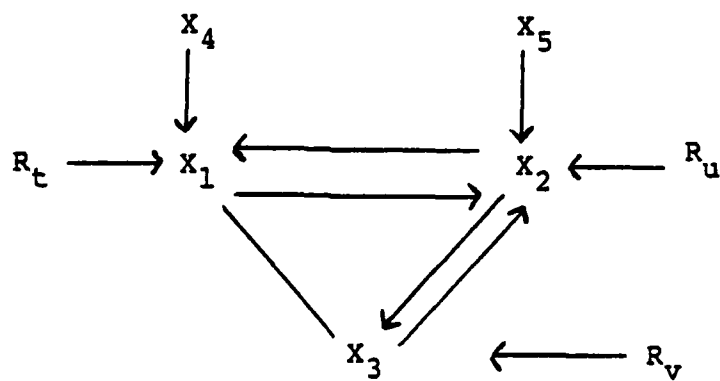
allow the residual terms to be mutually correlated."[17] This

assumption is central to nonrecursive policy analyses.[18]

Since the model is underidentified, one must bring additional

information into the process. This is illustrated in Part B of Figure

3.2. According to van Meter and Asher, one must identify a variable

that directly reflects X_2 but not X_3, and another that directly

affects X_3 but not X_2. These variables must be denoted on

theoretical grounds and must be exogenous to the reciprocal processes

already specified.[19]

In the development of a nonrecursive model, it is possible for the

theory upon which the model is based to result in a situation wherein

some equations are underidentified and others are overidentified. In

these equations, one must consider two additional restrictions in

properly identifying the model: the order condition and the rank

condition. The order condition states that if one has a model

composed of N linear equations, then for any equation to be

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[17]van Meter and Asher, p. 68; Herbert B. Asher, _Causal Modeling_ (Beverly Hills: Sage Publications, 1976), p. 52.

[18]See John E. Jackson, "Issues, Party Choices, and Presidential Votes," _American Journal of Political Science_ 19 (1975), pp. 161-185; Eric A. Hanushek and John E. Jackson, _Statistical Methods for Social Scientists_, (New York: Academic Press, 1977); Franklin M. Fisher, "The Choice of Instrumental Variables in the Estimation of Economy-wide Econometric Models," in Blalock, 1971, pp. 245-272; Gillian Dean, "The Study of Political Feedback Using Nonrecursive Models: The Case of State Divorce Policies," in Grumm and Wasby, pp. 113-122; Page and Jones, 1079-1080.

[19]van Meter and Asher, p. 69; Page and Jones, p. 1079; Asher, pp. 54-56.

identified it must exclude at least N-1 of the variables which appear

in the model.[20] Stated another way, "the number of excluded

variables must at least equal the number of variables included in the

equation."[21] The rank condition states that in a matrix of

coefficients of the structural equations, at least one non-zero

determinant of N-1 rows and columns must be contained.[22] Ordinary

least squares (OLS) regression is not appropriate for estimating

causal paths under these conditions because of problems with

identification and because of the relaxation of the requirement for

uncorrelated error terms.

The regression technique of two-stage least squares has been

developed to overcome these difficulties.[23] Utilizing this method,

a first-stage series of regressions are executed which generate dummy

variables representing linear combinations of variables that are

themselves uncorrelated with the error terms. Since these dummy

variables represent exogenous influences, they may be included in a

second stage of regression with the original variables, thus ensuring

that rank and order conditions are met. This process is appropriate

for exactly identified and over-identified equations. Thus,

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[20]Asher, p. 52.

[21]R. J. Wonnacot and T. H. Wonnacot, _Econometrics_ (New York: Wiley, 1970) p. 180.

[22]A full discussion of determinants is contained in Asher, pp. 71-72. See also C. Christ, _Econometric Models and Methods_ (New York: Wiley, 1966), p. 320.

[23]Asher, p. 61.

nonrecursive models must be constructed so as not to contain under-identified equations via the inclusion of appropriate exogenous variables, and two-stage least squares regression is recommended to ensure proper equation identification.

Conclusions

The purpose of this research report is to isolate the determinants of turnover behavior within the Naval Reserve so that policy analysts and manpower managers can evaluate the impact of current and proposed policies on individual attrition decisions. The policy analysis literature explicitly calls for a methodology which as closely as possible approximates the processes of organizational participation. Nonrecursive path analysis is recommended as the methodological procedure which most nearly satisfies this requirement.

The next chapter will utilize nonrecursive path analysis to examine the independent and combined impact of the variables identified in Chapter Two on turnover decisions in the Naval Reserve.

CHAPTER FOUR

A MODEL FOR ORGANIZATIONAL PARTICIPATION

Introduction

The causal methodology cited in Chapter Three emphasizes the

critical necessity of establishing a theoretical basis for posited

relationships prior to a quantitative analysis of those

relationships.[1] Theory must guide analysis if any validity is to be

attributed to statistical associations between variables.

Accordingly, the model developed here is an extension of the research

cited in Chapter Two which supports certain causal relationships and

does not support certain others.

Endogenous Relationships

The central themes of expectancy, satisfaction and performance

dominate the literature. Vroom indicates that satisfaction partially

determines expectancy which then determines participation and

withdrawal behavior as co-terminal outputs. Porter and Lawler

indicate that expectancy and participation are reciprocally

---

[1]In order to facilitate this phase of model development,
references to work previously cited in Chapter Two will not be
footnoted. The reader is directed to these previous citations for
complete documentation.

interactive and that satisfaction and participation are also interactive at a later stage. Tuttle and Hazel accept Porter and Lawler's argument concerning expectancy-participation interactions but reject their theory of participation-satisfaction interactions in favor of a one-way causal relationship flowing from participation to satisfaction. Horner, on the other hand, sees participation as being prior to expectancy and posits that satisfaction is a function of their joint effects. Steers and Mowday place expectancy prior to participation and satisfaction, and argue for reciprocal interactions between the latter two.

Given the situation that valid arguments are available to substantiate any combination of satisfaction, expectancy, participation, and withdrawl intention as is evidenced by the above, it can be hypothesized that all of these variables are co-existent and interactive. These mutual interactions, in combination, can be hypothesized to predict participation and withdrawal intention. Part A of Figure 4.1 illustrates this circumstance. This initial conceptual model, however, is faulty on two grounds: it does not include other factors which have been identified in the literature as being relevant, and it cannot be estimated empirically because it is severely underidentified. Therefore, the hypothesis must be elaborated.

Fishbein, following the earlier work of Rosenberg, theorized that an individual's attitude toward the act of withdrawal (Aact) is an immediate predictor of withdrawal intention and that it is determined in part by expectancy. Mobley, et al. agreed with Fishbein's

Figure 4.1

A THEORETICAL MODEL OF PARTICIPATION

A. Initial Conditions:

Expectancy $\xleftarrow{(+)}$ Participation

(with arrows labeled (+) connecting Expectancy, Participation, and Satisfaction)

Satisfaction

$\downarrow$ (+)
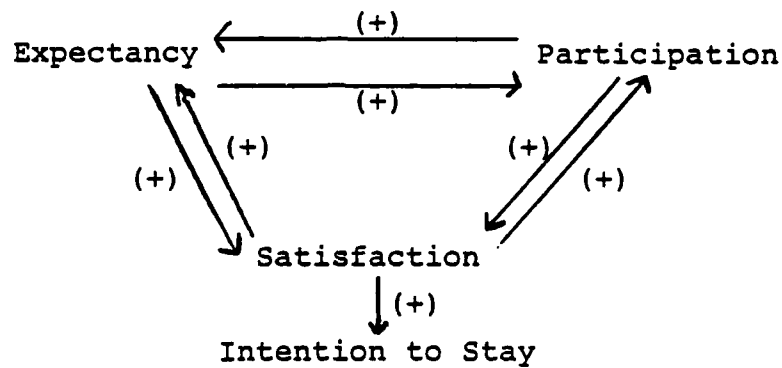
Intention to Stay

B. Inclusion of Attitude Toward the Act of Withdrawal (Aact):

Expectancy $\xleftarrow{(+)}$ Participation

(with arrows labeled (+) connecting Expectancy, Participation, and Satisfaction)

Satisfaction

(−) $\uparrow$ $\downarrow$ (−)

Attitude Toward the Act

$\downarrow$ (−)

Intention to Stay

75
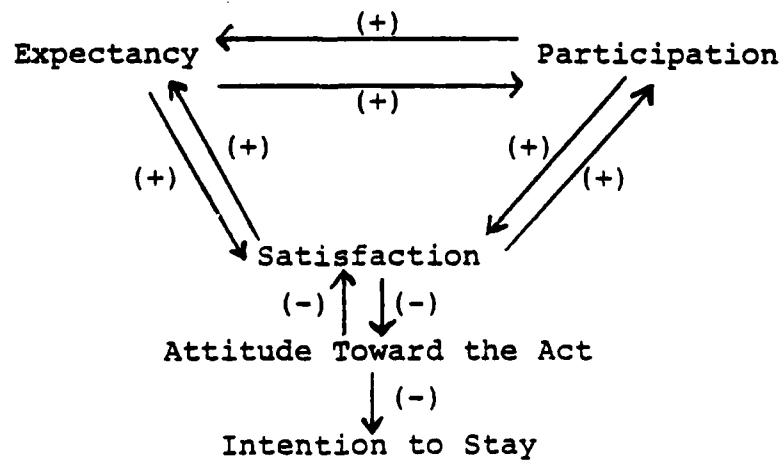
Figure 4.1 (Continued)

C. Inclusion of Organization Cathexis:

76
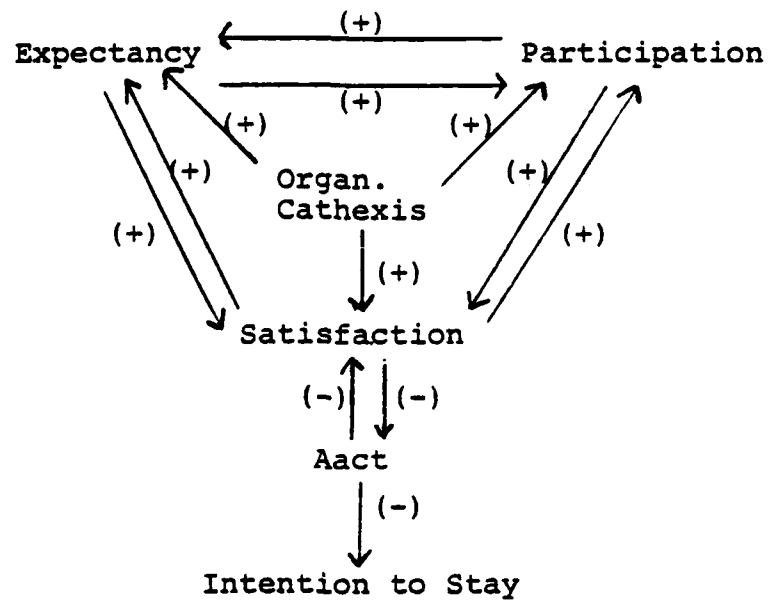
positioning of Aact in relation to behavioral intention, but found no
support for its relationship to expectancy. Rather, when defined as a
job-related perception, it appeared to be theoretically prior to
satisfaction. In this context, they posited that organizational
factors such as pay and supervision (leadership) were its
determinants. Steers and Mowday agreed with Mobley, et al. and
Fishbein in that Aact is a pre-condition of behavioral intention, but
disagreed with them by positioning it as a separate exogenous
influence unaffected by other factors such as leadership. By
accepting the Fishbein-based concept of Aact and the Mobley, et al.
evidence that it is a partial determinant of satisfaction, the model
illustrated in Part B of Figure 4.1 can be derived. However, the
problems of underidentification and theoretical incompleteness are
still present.

Organizational cathexis has been discussed by Zurcher in terms of
role theory as a subjective relationship between the organization and
the individual which binds the two together. Vroom addressed this
concept in terms of instrumentality by questioning the degree of
certainty existing between participation and reward receipt, and the
degree to which participation makes a difference in achieving
organizational goals. Porter and Lawler used the term 'commitment'
and defined it both as a role perception and as an effort-rewards
probability, using it as a co-determinant with expectancy for
participation. Tuttle and Hazel defined the concept as a relationship
wherein individuals and organizations meet each other's requirements
in varying degrees of congruence. Both Horner and Steers and Mowday,
using the term 'commitment', included it interactively with
satisfaction, expectancy and participation. Mobley, et al. used the

concept as an exogenous factor. In response to this previous research, inclusion of organizational cathexis in a theoretical model would appear to be appropriate. Part C of Figure 4.1 reflects this. However, the problem of underidentification remains.

Hypotheses to be Tested (I)

The following hypotheses form the basis for the model illustrated in Part C of Figure 4.1:

1. Expectancy is a partial determinant of participation (Vroom, Tuttle and Hazel, Steers and Mowday).

2. Participation Level is a partial determinant of expectancy (Porter and Lawler, Tuttle and Hazel, Horner).

3. Participation Level is a partial determinant of satisfaction (Porter and Lawler, Tuttle and Hazel, Horner, Steers and Mowday).

4. *Satisfaction is a partial determinant of Participation Level (Porter and Lawler, Steers and Mowday).*

5. Expectancy is a partial determinant of satisfaction (Mobley et al., Horner, Steers and Mowday).

6. Satisfaction is a partial determinant of expectancy (Vroom, Mobley, et al., Steers and Mowday).

7. Organizational cathexis is a partial determinant of expectancy (Vroom, Mobley et al.).

8. Organizational cathexis is a partial determinant of participation (Porter and Lawler).

9. Organizational cathexis is a partial determinant of satisfaction (Tuttle and Hazel, Mobley et al., Steers and Mowday).

10. Attitude toward the act of withdrawal (Aact) is a partial determinant of satisfaction (Mobley et al.).

11. Attitude toward the act of withdrawal (Aact) is
     the major determinant of individual intention to
     stay or leave, all other endogenous factors
     being determinants of Aact (Rosenberg, Fishbein).

Exogenous Relationships

The model illustrated in Part C of Figure 4.1 is underidentified
and cannot be tested statistically due to the restrictions discussed
in Chapter Three. As that discussion indicated, underidentification
can be overcome by the inclusion of exogenous factors which directly
affect some, but not all, of the endogenous factors, providing that
there is theoretical justification for their inclusion.

The influence of relevant others has been addressed by several
theorists as a significant exogenous factor. Both Dulaney and
Fishbein include this concept in their discussions of societal norms.
Dulaney's Behavioral Hypothesis is defined as the congruence of
individual response with group expectations. Fishbein elaborated the
concept by defining it as the product of societal norms and an
individual's personal motivation to comply with these norms. Dulaney
used the factor as a direct antecedent of behavioral intention, and
Fishbein inserted it as an antecedent of Aact. Tuttle and Hazel
indicate that the influence variable is a partial determinant of
performance and Mobley, et al. argue that it partially determines
satisfaction. Steers and Mowday agree with Fishbein in using it as a
partial determinant of behavioral intention. Part A of Figure 4.2
illustrates its inclusion based on these arguments.

Extrinsic rewards such as pay and retirement benefits have long
been included as predictors of organizational participation. Vroom

uses reward value as a partial determinant of expectancy as does

Mobley, et al. who also include it as a factor in determining

satisfaction. Porter and Lawler argue that reward value partially

determines both participation and satisfaction as do Steers and

Mowday, while Tuttle and Hazel argue for its inclusion only as a

satisfaction predictor. Dulaney used reward value as an immediate

predictor of behavioral intent. Part B of Figure 4.2 depicts its

inclusion in the theoretical model.

Leadership defined as supervisory style has also been included in

many discussions of participation. Mobley, et al. treat this as an

organizational job-related perception and depict it as partially

determining expectancy, satisfaction, and attitude toward the act of

withdrawal. Steers and Mowday treat leadership style as a partial

determinant of organizational commitment, satisfaction, and

participation. Part C of Figure 4.2 illustrates its inclusion in the

model.

Lastly, individual differences measured in terms of socioeconomic

status have occasionally been used as indicators of differing degrees

of organizational participation. Mobley, et al. use individual

differences as partial determinants of expectancy and satisfaction and

Horner uses them as predictors of expectancy and participation.

Steers and Mowday, however, limit their influence to expectancy.

Figure 4.3 illustrates the inclusion of SES in the model. This fully

identifies a theoretical model of organizational participation.

Figure 4.2

A THEORETICAL MODEL WITH EXOGENOUS VARIABLES

A. Inclusion of Influence of Relevant Others:
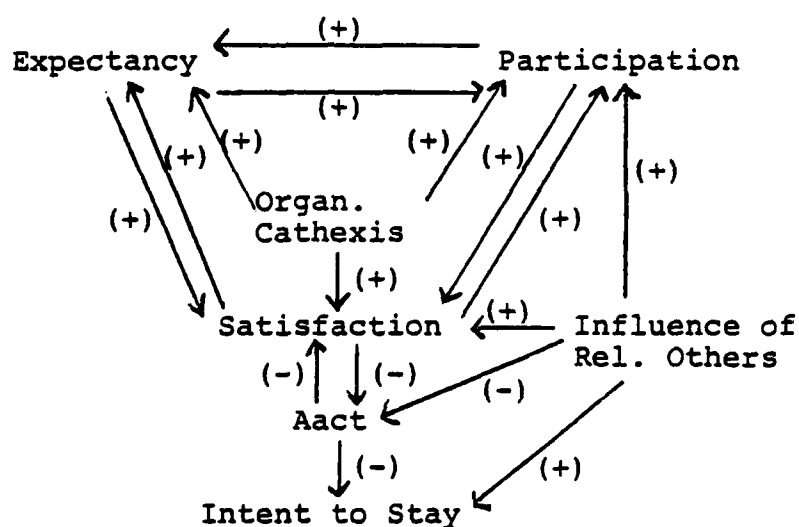
B. Inclusion of Reward Value (Pay, Retirement):
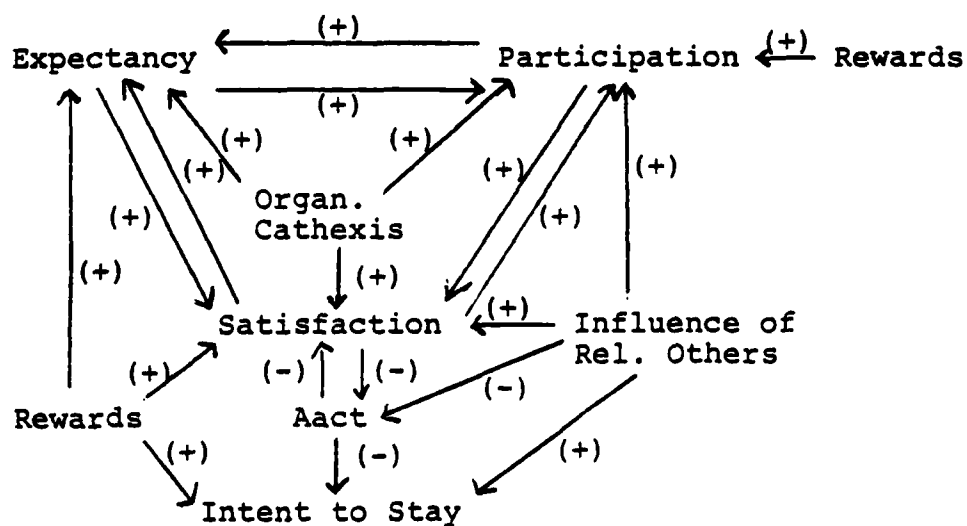
Figure 4.2. (Continued)

C. Inclusion of Leadership Style:

Figure 4.3

A FULLY-IDENTIFIED THEORETICAL MODEL OF
ORGANIZATIONAL PARTICIPATION
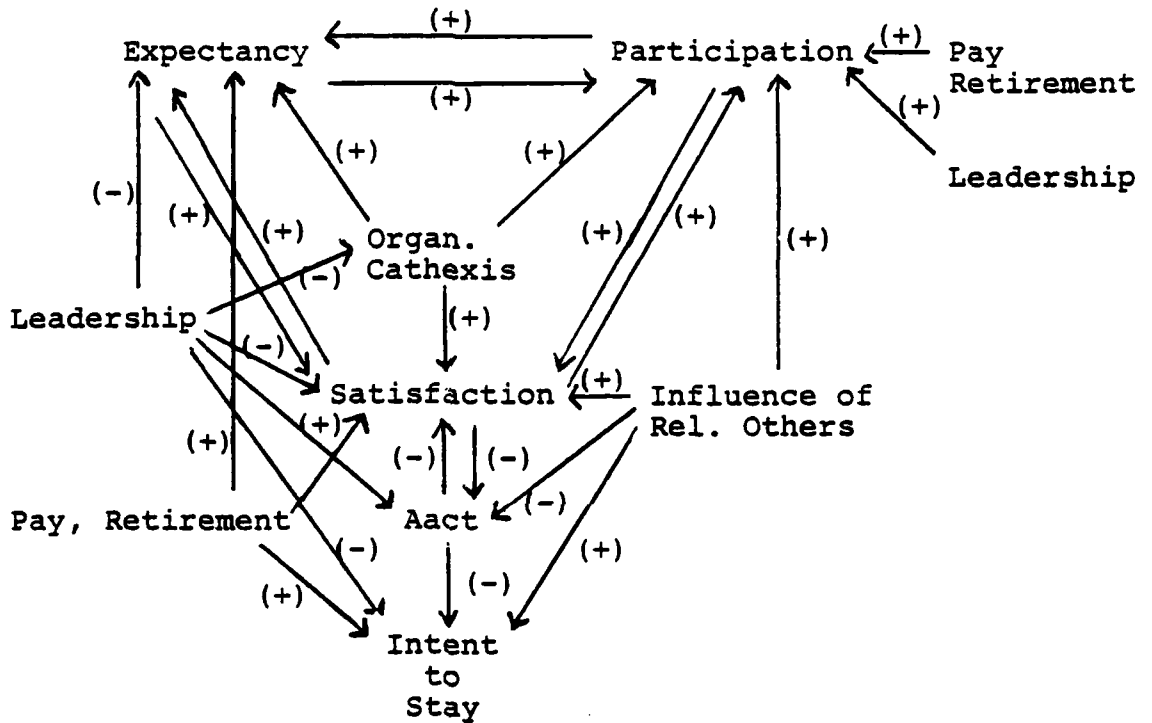
83
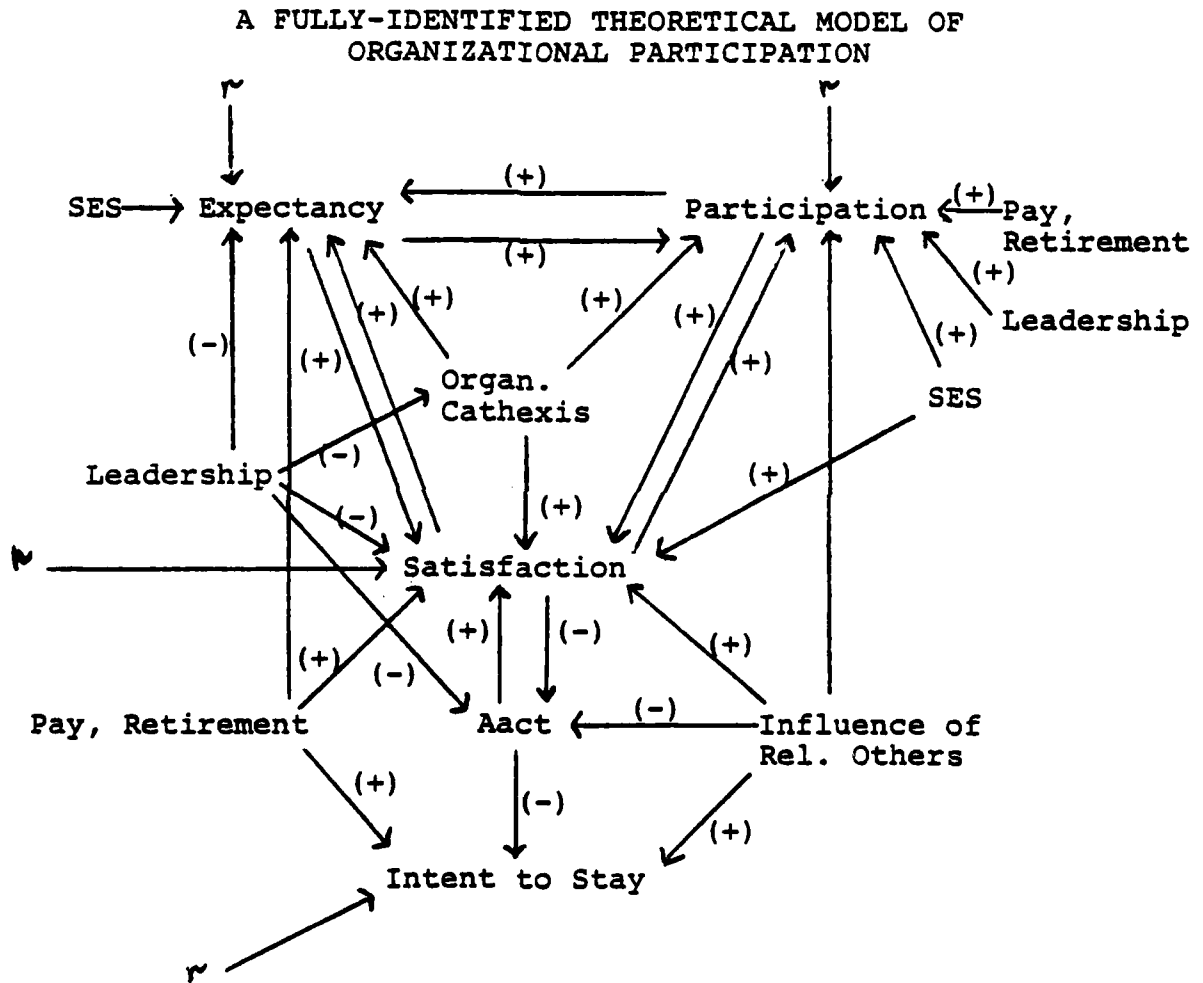
Hypotheses to be Tested (II)

The following additional hypotheses form the basis for the model

illustrated in Figure 4.3:

12. The influence of relevant others is a partial
determinant of participation, satisfaction,
attitude toward the act of withdrawal, and the
intention to stay (Dulaney, Fishbein, Tuttle and
Hazel, Mobley, et al., Steers and Mowday).

13. Reward value is a partial determinant of
participation, expectancy, satisfaction, and the
intention to stay (Vroom, Mobley, et al., Porter
and Lawler, Steers and Mowday, Tuttle and Hazel,
Dulaney).

14. Leadership style is a partial determinant of
participation, expectancy, organizational
cathexis, satisfaction, and attitude toward the
act of withdrawal (Mobley, et al., Steers and
Mowday).

15. Socioeconomic status is a partial determinant
of participation, expectancy, and satisfaction
(Mobley, et al., Steers and Mowday).

Analysis of the Model

Figure 4.3 represents a fully-identified non-recursive

theoretical model in which all hypothesized relationships are

represented. The following structural equations define these

hypotheses. Solving the equations will provide the estimates which

are required to evaluate the efficacy of each path in accordance with

the procedures discussed in Chapter Three.

(1) Participation Level $= b_1$ Retirement $+ b_2$ Pay $+$
$\quad b_3$ Influence $+ b_4$ SES $+ b_5$ Org. Cathexis
$\quad b_6$ Expectancy $+ b_7$ Satisfaction $+ r$

(2) Organizational Cathexis $= b_8$ Leadership $+ r$

(3) Aact $= b_9$ Influence $+ b_{10}$ Leadership $+$
b_{11} Satisfaction $+ r$

(4) Expectancy $= b_{12}$ Retirement $+ b_{13}$ Pay $+$
b_{14} Leadership $+ b_{15}$ SES $+ b_{16}$ Org.
Cathexis $+ b_{17}$ Participation $+$
b_{18} Satisfaction $+ r$

(5) Satisfaction $= b_{19}$ Retirement $+ b_{20}$ Pay $+$
b_{21} Influence $+ b_{22}$ Leadership $+ b_{23}$ SES
$+ b_{24}$ Org. Cathexis $+ b_{25}$ Aact $=$
b_{26} Expectancy $+ b_{27}$ Participation $+ r$

(6) Intent to Stay $= b_{28}$ Retirement $+ b_{29}$ Pay $+$
b_{30} Influence b_{31} Aact $+ r$

The solutions to this series of simultaneous regression
equations, presented in Table 4.1, provide the basis for determining
the strength of the causal paths in the hypothesized model. Both the
regression coefficients and their standard errors are shown.

It was noted in Chapter Three that a primary purpose of path
estimation is the elimination of paths which evidence only weak
explanatory power. In so doing, the researcher may be able to find
support for increasingly elegant models of reality. Table 4.1
contains several relationships which qualify for elimination under
these guidelines.

TABLE 4.1

REGRESSION EQUATIONS FOR THE INITIAL PATH ANALYTIC MODEL

	Org. Cathexis	Aact	Expectancy	Satis-faction	Participation Level	Intent to Stay
Retirement						
b value	a	a	.12	-.08	.10	.09
s.e. of b			.07	.15**	.18**	.02
Beta			.06*	-.01*	.02*	.15
Pay						
b value	a	a	-.11	.29	1.25	.04
s.e. of b			.08	.24	.28	.03
Beta			-.04	.04*	.19	.05*
Leadership						
b value	.40	.31	-.23	-.43	a	a
s.e. of b	.21	.02	.03	.05	a	
Beta	.61	.51	.21	-.30		
S.E.S.						
b value	a	a	.11	-.41	.10	a
s.e. of b			.04	.06	.07	
Beta			.08*	-.16*	.04*	
Influence						
b value	a	.03	a	.53	.74	.02
s.e. of b		.04**		.11	.12	.01
Beta		.03*		.15	.23	.04*
Org. Cathexis						
b value	-	a	.72	.04	-.24	a
s.e. of b	-		.04	.08*	.10	
Beta	-		.43	.04*	-.08*	
Aact						
b value	a	-	a	-.48	a	-.10
s.e. of b		-		.07		.01
Beta		-		-.20		-.26
Expectancy						
b value	a	a	-	.84	-.12	a
s.e. of b			-	.04	.05	
Beta			-	.63	.01*	

TABLE 4. 1 (CONTINUED)

	Org. Cathexis	Aact	Expec- tancy	Satis- faction	Participation Level	Intent to Stay
Satisfaction						
b value	a	.08	.35	–	.15	a
s.e. of b		.01	.02	–	.04	
Beta		-.18	.45	–	.15	
Participation						
b value	a	a	.07	.17	–	a
s.e. of b			.02	.03	–	
Beta			-.06*	.16	–	
Adjusted R^2	.40	.51	.61	.44	.25	.43

[a]These relationships were eliminated prior to computation based on the theoretical assumptions of the model. Sensitivity testing was conducted by including all theoretically prior variables in a separate set of structural equations. The solutions of these equations indicated that the theoretically excluded variables were not significant at the .05 level.

*Not significant at the .05 level indicating very weak explanatory power.

**The standard error is larger than the b value, thus making the relationship a candidate for elimination.

END

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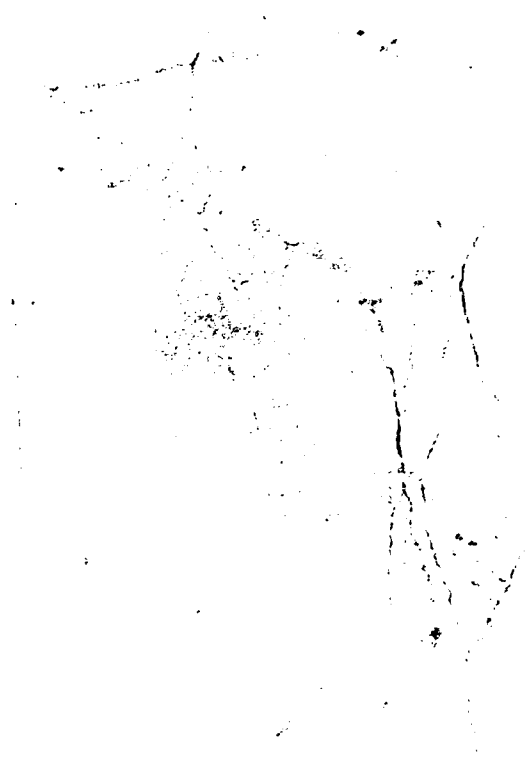
MICROCOPY RESOLUTION TEST CHART

NATIONAL BUREAU OF STANDARDS-1963-A

Their removal indicates the following situation in terms of support for hypotheses which were used to construct the theoretical model:

1. Expectancy partially determines participation level, <u>denied</u>.

2. Participation partially determines expectancy, <u>denied</u>.

3. Participation partially determines satisfaction, <u>accepted</u>.

4. Satisfaction partially determines participation level, <u>accepted</u>.

5. Expectancy partially determines satisfaction, <u>accepted</u>.

6. Satisfaction partially determines expectancy, <u>accepted.</u>

7. Organizational cathexis partially determines expectancy, <u>accepted</u>.

8. Organizational cathexis partially determines participation level, <u>denied</u>.

9. Organizational cathexis partially determines satisfaction, <u>denied</u>.

10. Attitude toward the act of withdrawal (Aact) partially determines satisfaction, <u>accepted</u>.

11a. Aact partially determines behavioral intention to leave or stay, <u>accepted</u>.

11b. Aact solely determines intention, <u>denied</u>.

12a. The influence of relevant others is a partial determinant of participation and satisfaction, <u>accepted</u>.

12b. The influence of relevant others is a partial determinant of Aact and intention to stay, <u>denied</u>.

13a. Reward value partially determines participation level, pay - <u>accepted</u>, retirement - <u>denied</u>.

13b. Reward value partially determines expectancy, pay - <u>denied</u>, retirement - <u>denied</u>.

13c. Reward value partially determines satisfaction, pay - <u>denied</u>, retirement - <u>denied</u>.

13d.   Reward value partially determines intention to stay, pay –
       denied, retirement – accepted.

14a.   Leadership style is a partial determinant of expectancy,
       organizational cathexis, satisfaction and Aact, accepted.

14b.   Leadership style is a partial determinant of participation
       level, denied.

15.   Socioeconomic status is a partial determinant of
       participation, expectancy, and satisfaction, denied.

Figure 4.4 illustrates a revised model wherein these modified

relationships are made explicit. The following equations define the

model:

(7)   Participation Level = b_1Pay + b_2Influence +

          b_3Satisfaction + r

(8)   Organizational Cathexis = b_4Leadership + r

(9)   Aact = b_5Satisfaction + b_6Leadership + r

(10) Expectancy = b_7Satisfaction + b_8Org. Cathexis +

          b_9Leadership + r

(11) Satisfaction = b_{10}Participation + b_{11}Influence +

          b_{12}Leadership + b_{13}Expectancy + b_{14}Aact + r

(12) Intent to Stay = b_{15}Aact + b_{16}Retirement + r

Table 4.2 contains the results of these simultaneous equations.

Conclusions

This chapter has developed an analytical model of enlisted

participation in the Naval reserve utilizing the technique of

nonrecursive path analysis. The next chapter will utilize this model

to investigate specific determinants of withdrawal behavior.

Figure 4.4

AN ANALYTICAL MODEL OF PARTICIPATION
IN THE NAVAL RESERVE
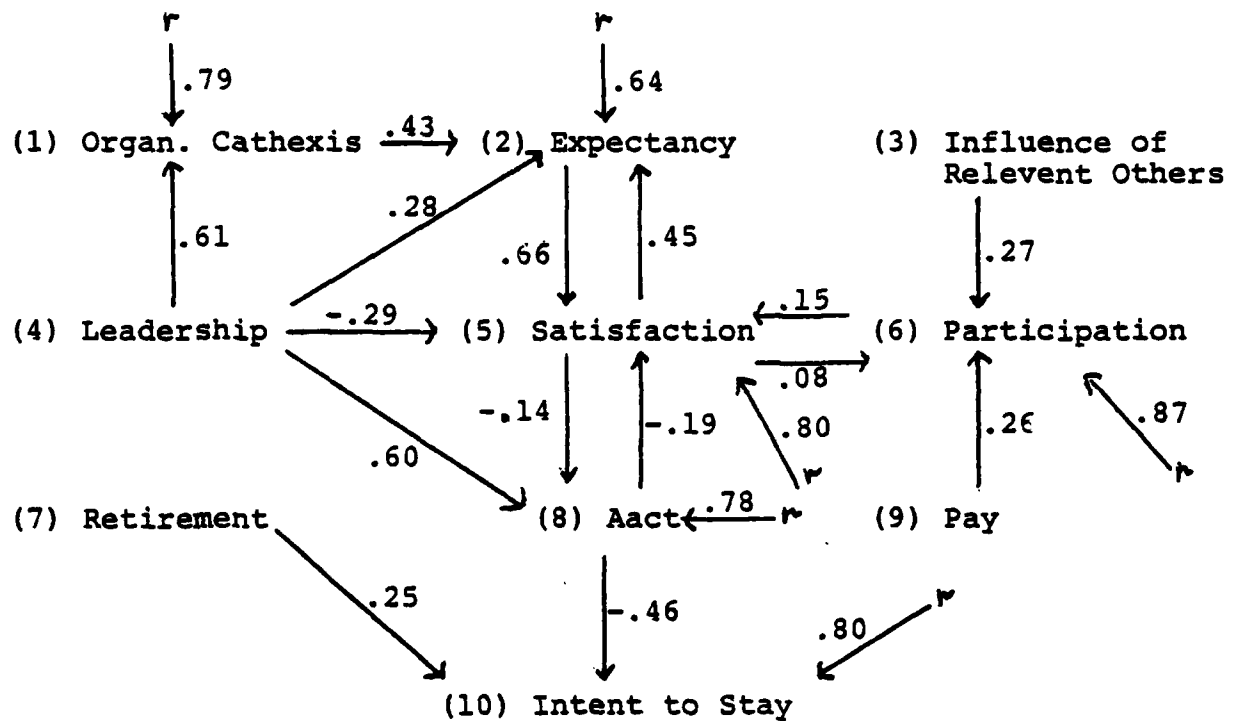
TABLE 4.2

REGRESSION EQUATIONS FOR THE REVISED
PATH ANALYTIC MODEL OF PARTICIPATION*

	Org. Cathexis	Aact	Expectancy	Satisfaction	Participation Level	Intent to Stay
Retirement						
b value	-	-	-	-	-	.14
s.e. of b	-	-	-	-	-	.02
Beta	-	-	-	-	-	.25
Pay						
b value	-	-	-	-	1.71	-
s.e. of b	-	-	-	-	.21	-
Beta	-	-	-	-	.26	-
Leadership						
b value	.40	.36	-.29	-.42	-	-
s.e. of b	.01	.01	.03	.05	-	-
Beta	.61	.60	.28	-.29	-	-
Influence						
b value	-	-	-	.53	.91	-
s.e. of b	-	-	-	.11	.10	-
Beta	-	-	-	.15	.27	-
Org. Cathexis						
b value	-	-	.72	-	-	-
s.e. of b	-	-	.04	-	-	-
Beta	-	-	.43	-	-	-
Aact						
b value	-	-	-	-.44	-	-.13
s.e. of b	-	-	-	.07	-	.01
Beta	-	-	-	-.19	-	-.46
Expectancy						
b value	-	-	-	.89	-	-
s.e. of b	-	-	-	.03	-	-
Beta	-	-	-	.66	-	-
Satisfaction						
b value	-	-.05	.35	-	.08	-
s.e. of b	-	.01	.02	-	.02	-
Beta	-	-.14	.45	-	.08	-
Participation						
b value	-	-	-	.16	-	-
s.e. of b	-	-	-	.03	-	-
Beta	-	-	-	.15	-	-
Adjusted R^2	.37	.39	.59	.36	.25	.36
S.E.E.	4.5	4.1	8.5	10.1	.80	.95

*All relationships are significant at the .05 level.

CHAPTER FIVE

ANALYTICAL CONCLUSIONS

Introduction

One must be cautious in drawing global conclusions from
sitation-dependent data. The model developed in Chapter Four is based
upon survey data concerning a part-time volunteer organization and the
residual disturbance terms are rather large in the equations relating
to the endogenous variables. The amount of explained variance ranges
between .25 and .39 with the exception of the expectancy equations
which develop an R^2 of .59. However, given the relatively large
number of variables, this amount of explained variance does indicate
that confidence can be placed in the validity of the relationships
within this particular context.

Specific Findings

Leadership Style

All variables operate in the expected direction (i.e., positive
or negative) except leadership style. The leadership variable is a

scale which measures perceived management style from highly democratic to highly authoritarian. The model indicates that an increasingly authoritarian leadership style would lead to higher levels of organizational cathexis and expectancy, while simultaneously leading to lowered satisfaction and increasingly positive attitudes toward the act of withdrawal (i.e., withdrawing is good). It would seem more logical for authoritarian leadership to be negatively associated with organizational cathexis and expectancy.

The fallacy lies in assuming that authoritarian leadership in the Naval Reserve is "wrong" and democratic leadership is "right". Such is not necessarily the case. Fiedler's investigations concerning leadership utilizing contingency analysis have provided a strong argument in support of the theory that effective leadership is situational. Simply put, authoritation leadership is as effective as other styles in certain environments. The Naval Reserve as a military organization is an authoritarian structure. Therefore, Naval Reservists expect this leadership style to be practiced. The positive relationship between it and expectancy supports this proposition.

Similarly, organizational cathexis as an attribute of role theory reflects a self-selection process whereby former active duty veterans fulfill ephemeral role needs. This ephemeral role has been defined by prior service in the Regular Navy which is more authoritarian than the Naval Reserve. Therefore, the practice of authoritarian leadership reinforces the role concept.

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The leadership scale used in constructing the behavioral model illustrated in Figure 4.4 measures respondents' preferences for authoritarianism. The model underlines the central importance of this concept for behavioral intention and highlights its relationship to the endogenous variables as previously discussed. The following equation defines the causal effect of leadership style on the intention to stay:

$$(1) \quad C_{10} = [(P_{8-4})(P_{10-8})]_1 +$$
$$[(P_{5-4})(P_{8-5})(P_{10-8})]_2 +$$
$$[(P_{1-4})(P_{2-1})(P_{5-2})(P_{8-5})(P_{10-8})]_3 +$$
$$[(P_{2-4})(P_{5-2})(P_{8-5})(P_{10-8})]_4$$

Where: C_{10} = The causal impact of leadership style on behavioral intention

And: P_{yx} = The path coefficients linking the variables

$[\ ]_1$ = Leadership - Aact - Intent

$[\ ]_2$ = Leadership - Satisfaction - Aact - Intent

$[\ ]_3$ = Leadership - Cathexis - Expectancy - Satisfaction - Aact - Intent

$[\ ]_4$ = Leadership - Expectancy - Satisfaction - Aact - Intent

Substituting values, the equation becomes:

$$(2) \quad C_{10} = (-.28) + (-.019) + (.011) + (.012) = -.276$$

Authoritarian leadership style reinforces organizational cathexis as the latter is defined in terms of ephemeral role and expectancy. However, the minimal causal impact of leadership through organizational cathexis and expectancy as illustrated in equation (2) where the partial P_{yx}'s are .011 and .012, respectively indicates the weakness of the relationship.

More importantly, authoritarian leadership leads to increasingly positive attitudes toward the act of withdrawal (i.e., it is good) which reduces the intention to stay. Similarly, authoritarianism reduces job satisfaction which, in turn, also works through Aact to reduce the intention to stay. Taken to its logical conclusion, a 100 percent increase in authoritarian leadership style will cause a 27.6 percent reduction in intention to remain in the Naval Reserve. Once again, this statement must be tempered by the presence of large stochastic disturbance terms.

However, leadership is not one-dimensional and the environment of the Naval Reserve is not monolithic. As Fiedler has indicated, leadership effectiveness is situational, not universal. There are circumstances wherein this style of leadership could be most effective. In a high-task environment with subordinates who lack the ability to discipline themselves to the task at hand, authoritarianism could be most appropriate. There may be instances in the Naval Reserve where this is the case. The conclusion to be drawn here is that **as a general rule** the universal application of authoritarianism

may drive out those individuals whose situation does not fit these parameters. It would appear that these individuals are in the majority.

The argument is often made that in a combat situation instantaneous obedience is an absolute necessity. Therefore, democratic leadership styles have no place in a military organization. This argument suffers from overly simplistic assumptions. All prior-service Naval Reservists have experienced intensive obedience conditioning, either in "boot camp" or Officer Candidate School. This conditioning has become an integral part of the Reservist's personality which when keyed, reasserts itself. It is not necessary to reinforce this behavior pattern continually and overtly. The occasional reinforcement provided by voluntary service in a Naval Reserve unit, with its subliminal authoritarian structure, should serve this purpose. If mobilized, Reservists should respond as their prior conditioning requires.

The Naval Reserve is not the Regular Navy, neither is it in a combat situation. Therefore, a policy of over-reliance on authoritarianism without due regard for the contingencies of the environment may be, quite possibly, a mistake.

Pay Level

The causal effect of pay levels on turnover behavior can be defined by the following equation:

(2) $C_{10} = (P_{6-9})(P_{5-6})(P_{8-5})(P_{10-8})$

Where: C_{10} = The causal impact of pay level on behavioral
               intention

And: P_{yx} = The path coefficients linking pay, satisfaction, and
               Aact to behavioral intention

Substituting values, the equation becomes:

(3) $C_{10} = (.26)(.15)(-.14)(-.46) = .003$

The equation represents the influence of pay operating through
participation level, satisfaction, and Aact, and indicates the
probability that increases in pay will not materially affect the
intention to stay.

Other studies such as the OASD(MRA&L) analysis of pay

elasticities have found stronger relationships between pay and

retention.[1] Specifically, the model developed by Alderman relied on

labor market characteristics and utilized a series of "elasticity"

measures to relate Reserve pay, civilian pay, reenlistment bonuses and

unemployment rates to withdrawal behavior.[2] These elasticity

measures were defined as the multiple regression coefficients computed

when the above-mentioned factors were used as predictors of retention

rates. Using this approach, reserve pay was found to have an

elasticity of .20. MRA&L stated that, "Consequently, to increase the

retention rate from 40 to 48 percent (20 percent) would require a 100

percent increase in net reserve pay."[3]

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[1]Alderman, November 1979; Alderman, February 1980.

[2]Karen Cleary Alderman, A Critique of the Projected Enlisted
Reserve Component (PERCS) Model, Special Project Group, Assistant
Secretary of Defense for Manpower, Reserve Affairs and Logistics,
Washington, D.C., Oct., 1979. (Mimeographed)

[3]Ibid. p. 14.

The data base used by MRA&L represents all Reserve components
without regard for unique differences among them. For example, the
Naval Reserve consists of 90 percent prior service personnel, whereas
the Army Reserve and the National Guard rely heavily on non-prior
service individuals who have no experience with military life. As
previously discussed, organizational cathexis is a significant factor
in participation behavior throughout the relevant literature. Prior
service in the Navy uniquely accomplishes this for the Naval Reserve.
The Alderman (OASD) studies illustrate the danger of excluding
non-pecuniary factors from analyses of turnover behavior. When these
factors are included, the impact of pay on retention in the Naval
Reserve is greatly diminished.

Pay in the Naval Reserve is qualitatively different than in the
regular Navy because being a Naval Reservist is not a full-time
occupation. The Naval Reservist does not rely on his reserve pay as
the primary source of income. Rather, the Reserve is viewed
economically as a part-time job which augments civilian full-time
employment. Therefore, pay levels beyond a certain minimal baseline
may not significantly contribute to retention. Frederick Herzberg
defined pay as a "hygenic" or dissatisfying motivator which operates
in an increasingly negative direction, commencing from an initial
level of indifference. This means that increases in pay will tend to
decrease dissatisfaction but will not cross the neutral position to
become positive reinforcers.

Other studies have indicated that pay is the single most important

reason given for initially joining the Naval Reserve.[4] If this so,

it is logical to assume that pay levels define a baseline which is

acceptable to the individual given the part-time nature of the job and

below which severe dissatisfaction occurs. However, because of the

part-time nature of the job and the relatively small amount of income

received when compared with total civilian income, the probability

exists that increasing pay will not have as significant an effect on

retention in the Naval Reserve as it does in the active duty Navy

where the Navy is the principal occupation of the individual.

Retirement Benefits

The 1978 Reserve Compensation System Study directed by K.C.

Alderman for OASD (MRA&L) proposed radical changes in the retirement

system of the Reserve Forces. Specifically, it stated:

> The Reserve Compensation
> System should place greater
> emphasis on current rather than
> deferred compensation. The need
> for a retirement system is much
> less apparent than for the active
> forces, particularly because many
> Reservists will be members of

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[4]Milton L. Boykin and Hardy L. Merritt, "Retention: A
Preliminary Report," Naval Reserve Readiness Command Region Seven,
Charleston, S.C., Oct., 1979; Milton L. Boykin, Hardy L. Merritt and
Richard L. Smith, "An Empirical Analysis of Retention Within the
United States Naval Reserve," Chief of Naval Reserve, New Orleans,
La., July 1980

retirement systems through their
primary employment.[5]

The study presented two alternatives to the present retirement system:

> Alternative #1 is the
> continuation of a modified reserve
> retirement; Alternative #2 is for
> "No Retirement" (emphasis added).
> The basic purpose of both
> alternatives is to shift
> compensation forward . . ..[6]

Implementation of Alternative #1 would decrease the Reserve annuity for enlisted personnel by 21 percent (E-8, 26 years of service) to 30 percent (E-6, 20 years of service).[7] In discussing the second case, the study states, "Alternative #2 has no historical data upon which to base a judgement as to its probable effectiveness."[8] The following presents a basis for judgement of both alternatives.

Returning to the behavioral model presented in Figure 4.4, one can observe that the P_{yx} between retirement and intention to stay is .25. Additionally, equation (3) of this chapter illustrates that the causal effect of pay on retention is .003. The relative impact of the two varies by two orders of magnitude, as indicated by the following equations:

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[5]Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics), Reserve Compensation System Study Final Report, K.C. Alderman, Director, June 1978, p. xvi.

[6]Ibid., p. vi-70.

[7]Ibid., p. vi-76.

[8]Ibid., p. vi-71.

(4) $C_{10} = P_{yx}Retirement + P_{xy}Pay$

Where: C_{10} = The joint impact of pay and retirement on
intention to stay

$P_{yx}Retirement$ = The path coefficients between retirement
and intention to stay

$P_{yx}Pay$ = The summed path coefficient between pay and
intention to stay (from equation (3)).

Substituting values, the equation becomes:

(5) $C_{10} = .25 + .003 = .253$

Implementation of Alternative #1, assuming a 25 percent reduction
in retirement, would reduce behavioral intention to stay by 6.25
percent $(C_{10} - (C_{10} x .25))$.

It is obvious by inspection that implementation of Alternative #2
would severely reduce retention. Eliminating retirement from the
equation altogether would reduce behavioral intention to stay in the
Reserves by 25 percent. Included in Alternative #2 is a bonus paid in
lieu of retirement pay. Bonuses are considered by the MRA&L study as
current pay. Equation (3) indicates that the causal impact of pay on
turnover behavior is .3 percent. Therefore, such a plan would have no
compensating positive impact on retention.

The study asserts that,

> Ancillary benefits which are
> an integral part of retirement and
> which have significant value to the
> individual (commissary, exchange,
> medical) would not be altered under
> the modified retirement plan. As

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a result, the overall impact on an
individual is not as substantial as
indicated. The specific amount of
value (or costs) connected with the
ancillary benefits which should be
attributed to each member cannot be
determined (emphasis added).
However, it is apparent that the
value of these benefits would not
be dependent upon the size of the
annuity. Therefore, the overall
impact of the proposals to modify
reserve retirement would be
mitigated somewhat by the retention
of the deferred benefits and to the
greatest degree for those whose
annuity was most dramatically
affected by the proposed
modifications.[9]

Since the value of these benefits cannot be determined and they

are not dependent upon the size of the annuity, it is more logical to

treat such items as a constant which equally affects the Study

scenario and equation (4) developed herein. As a constant, it should

be discounted rather treated as a mitigating factor, thus invalidating

the argument noted above.

Analyses of retirement benefits such as contained in the RCS

Study fail to consider the mediating influences of non-pecuniary

variables when comparing the relative importance of current versus

deferred compensation. Implementation of RCS Alternative #1 could

cost the Naval Reserve as much as 4,400 Enlisted Selected Reservists;

implementation of Alternative #2 could cost 17,800 SELRES.[10]

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[9]Ibid., p. vi-77-78.

[10]Obtained by applying the percentage reductions to SELRES
enlisted figures reported in "Defense/82," Armed Forces Information
Service, Arlington, VA, September 1982.

Other Factors

The relative importance of the other factors identified in the literature of turnover behavior can be identified by decomposing the causal effect of each of the variables illustrated in Figure 4.4. Given limited assets, Naval Reserve policymakers could then concentrate on those factors which have a relatively strong impact on the intention to stay and disregard those that are only weakly associated with the decision to remain or leave.

The decomposition of the model in relation to the intention to stay takes the following form:

(12) Organizational Cathexis $= (P_{2-1})(P_{5-2})(P_{8-5})(P_{10-8})$

(13) Expectancy $= (P_{5-2})(P_{8-5})(P_{10-8})$

(14) Influence of Relevant Others $= (P_{6-3})(P_{5-6})(P_{10-8}) +$
$$(P_{5-3})(P_{8-5})(P_{10-8})$$

(15) Leadership $= (P_{1-4})(P_{2-1})(P_{5-2})(P_{8-5})(P_{10-8}) +$
$$(P_{2-4})(P_{5-2})(P_{8-5})(P_{10-8}) +$$
$$(P_{5-4})(P_{8-5})(P_{10-8}) + (P_{8-4})(P_{10-8})$$

(16) Satisfaction $= (P_{8-5})(P_{10-8})$

(17) Performance $= (P_{5-6})(P_{8-5})(P_{10-8})$

(18) Pay $= (P_{6-9})(P_{5-6})(P_{8-5})(P_{10-8})$

(19) Retirement $= (P_{16-7})$

(20) Aact $= (P_{10-8})$

Substituting values for the path coefficients produces the following table of causal effects:

Variable	Impact	Significance Level
Organizational Cathexis	.018	.05
Expectancy	.040	.05
Influence of Relevant Others	.013	.05
Leadership Style	-.276	.01
Satisfaction	.064	.05
Performance	.010	.05
Pay	.003	.05
Aact	-.460	.01
Retirement	.250	.01

A comparison of retirement benefits and current pay levels reiterates the discussion of the MRA&L proposal. Keeping in mind the reliability limits established by significance levels and stochastic disturbances, it appears that pay is not an appropriate area for policy activity. Rather, if extrinsic rewards are to be funded for the purpose of retention, retirement benefits possess a greater potential for achieving retention objectives.

A generic attitude toward the act of withdrawal (Aact) is the single strongest causal effect on the intention to stay. Policies directed toward changing this attitude would seem to be most appropriate. What form would such policies take? An inspection of Figure 4.4 reveals that authoritarian leadership style is a very significant factor in the existence of this attitude. Leadership acts both directly on Aact and indirectly through job satisfaction to increase a generalized attitude that withdrawal activity is constructive. Therefore, modifying leadership style in a more democratic direction should have the effect, within the reliability parameters established, of decreasing Aact and increasing the intention to stay.

Decomposing the model in relation to participation level produces
the following table of causal effects:

Variable	Impact	Significance Level
Influence of Relevant Others	.282	.01
Pay	.260	.01
Satisfaction	.080	.05

Within the constraints imposed by significance levels and large
stochastic disturbances, the influence of relevant others appears to
be most strongly related to participation level. This complex
variable includes the influence of the spouse, the influence of the
civilian employer, the strength of friendships with other Naval
Reservists, and the perceived attitudes of civilian acquaintances
toward membership in the organization. Currently, the Naval Reserve
is collaborating with the Reserve components of the Army, Air Force,
and National Guard to encourage the National Committee for Employer
Support of the Guard and Reserve. The purpose of this organization is
to raise the awareness of employers and the general public in regard
to the importance of the military reserves. The model developed here
indicates that increased emphasis in this area may be beneficial in
terms of increased participation level.

The proposition that increased pay levels serve to increase
participation level finds support in the model. However, the
complexity of the model indicates that this factor is not as important
as the influences variable when viewed as a whole. The latter
variable has a causal effect on retention in the amount of .013, while
pay only has a

causal effect on retention of .003. The influence variable also has a
larger effect on participation level than does pay. If a resource
allocation decision had to be made between the two, it appears that
policies concerning developing positive affect in relevant others
would be preferable.

Summary

In summary, the following policies relating to manpower
management are suggested:

1. Increase retirement benefits.

2. Emphasize democratic leadership styles.

3. Increase funding for the National Committee for Employer
   Support of the Guard and Reserve.

4. Encourage spouse and employer involvement in the activities
   of the Naval Reserve.

5. Increase pay levels, but not at the expense of the policies
   listed above.

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A BEHAVIORAL MODEL OF THE
DETERMINANTS OF PERSONNEL TURNOVER
IN THE ENLISTED RESERVE
OF THE U. S. NAVY

RESERVE COMPONENT RETENTION STUDY
REPORT NUMBER ONE

Commander Hardy L. Merritt, USNR

END